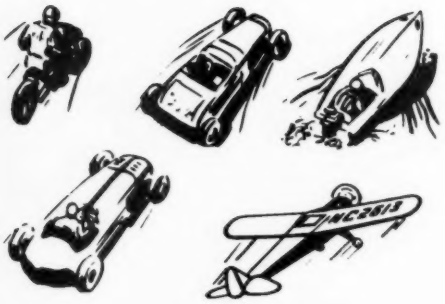
MODEL AIRPLANE NEWS

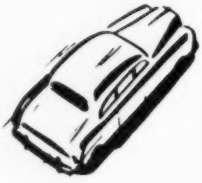
AUGUST 1952 25 CENTS

FRENCH MYSTERE

MORE SPEED RECORDS



...and MORE FIRST PLACES in Speed Contests



HAVE BEEN WON BY FRANCISCO FUELS

THAN ALL OTHER PREPARED FUELS COMBINED!

THE **ONLY** **FUEL** with volatane control!

THE **ONLY** **FUEL** processed to avoid spoilage!

THE **ONLY** **FUEL** which is truly acclimatized!

THE **ONLY** **FUEL** based on 30 years' experience!

If you want record-breaking *speed*—dependable *operation*—and protective *performance*, there is only ONE answer: FRANCISCO FUELS. FIRST in Public Preference, FRANCISCO FUELS are also FIRST in Service to Users with the most *complete line in the world!*

FUEL OF THE CHAMPIONS

From the World's Best Equipped Racing Fuel Laboratories

There is a specially processed FRANCISCO FUEL for every engine size, type and operation requirement. Ask your dealer for the one designed for your engine. **Also Treated Degummed Castor Oil Concentrates.**

THE MOST RESPECTED FUEL IN THE WORLD

FRANCISCO LABORATORIES

FIRST • LARGEST • BEST EQUIPPED

3015 Glendale Blvd. · Los Angeles 39, California

COMET PACEMAKER

A Natural for the 1952 Nationals & Plymouth Meet

Kit No. T4-Pacemaker
Wingspan 40"

It's Growing

BIGGER and

BIGGER and

BIGGER!

COMET DOPE

Your Best Buy
Your Biggest Value!

10¢

Why do so many model builders find Comet the best buy in the dope field? Because Comet Dope gives them the highest quality—in a big jar for only 10c! Comet Dope has been winning new friends by the millions—and *holding them!* The truest, up-to-the-minute colors—Insignia Blue and Red, Regal Maroon, Aeronca Orange, Taylorcraft Yellow—and a full range of other vivid colors! Amazing covering capacity—flows on smoothly, dries quickly, makes models look better! Remarkable resistance to separation and hardening—stays good in the jar!

COMET CEMENT: Regular; Extra Fast Drying; also Cement for Polystyrene PLASTICS (in Jar or Tube)-BIG VALUES at 10¢

Great New "Free Flight"

½A GAS MODEL

For beginner or "old-timer", there are thrills galore in Comet's great new PRE-FAB "PACEMAKER" Gas Model! Finished and die-cut parts make it a cinch to build—and how it flies! Fuel-proof plastic cowling, windshield and windows; all parts die-cut to size; decal model emblem and numerals; all necessary finished metal parts; dethermalizer equipped; easy-to-follow detailed plans; designed for average ½A engines! Get it—build it—fly it—it's terrific!

$2.50

COMET MODEL HOBBYCRAFT, INC.
501 WEST 35th STREET CHICAGO 16, ILLINOIS

MODEL AIRPLANE NEWS

Serving Aviation 23 Years

AUGUST 1952 VOL. XLVII — No. 2

CONTENTS

CONSTRUCTION

The Jenny 11
Mars 16

NEWS

Scrap Box 4
Planes in the News 5
AMA News 32

ARTICLES

Tips from a Champ 20
RC Review, Introduction 21
RC Review, Transmitters 22
RC Review, Receivers 24
RC Reviews, Actuators 26
RC Review, Glossary 27
How Much are Your 10c Gliders 34

FEATURES

MAN at Work 2
Air Ways 14
We Test the Clipper, Jr. 18
Design Detail 30

JAY P. CLEVELAND, President and Publisher
WILLIAM WINTER, Editor
WITTICH HOLLOWAY, Art Director

Contributing Editors: David Anderton, Robert C. Hare, Jim Saftig, Joseph Nisto, Harry Williamson

Executive and Editorial Office: 551 Fifth Avenue, New York 17, N. Y.

Advertising Manager, N. E. Slane, 551 5th Ave., New York 17; West Coast Adv. Mgr., Justin Hannon, 4068 Crenshaw Blvd., Los Angeles 43, Calif.

Editorial and Business offices: 551 Fifth Ave., New York 17, N. Y. Published monthly by Air Age, Inc., 1140 East West Highway, Silver Spring, Maryland. Jay P. Cleveland, President and Treasurer; V. P. Johnson, Vice Pres.; O. E. Johnson, Sec. Entered as second class matter Feb. 1951 at the post office at Silver Spring, Md., under the act of March 3, 1879. Additional entry at New York, N. Y. Price 25c per copy in U. S. Subscription Rates — Within U. S. only: 1 yr. $2.50; 2 yrs. $4.75. In Canada: 1 yr. $3; 2 yrs. $5.75. All other parts of the world: 1 yr. $3.50; 2 yrs. $6.75. Change of Address — Send to MODEL AIRPLANE NEWS, Subscription Department, 551 Fifth Avenue, New York 17, New York, at least one month before the date of the issue with which it is to take effect. Send old address with the new, enclosing if possible your address label or copy. The Post Office will not forward copies unless you provide extra postage. Duplicate issues cannot be sent.

Copyright 1952 by Air Age, Inc.

by William Winter

▸ At the first Nationals we attended so many, many years ago, all you heard in the hotel elevators was "Frank Zaic's YEARBOOK is out." Before we turned the city back to the natives, everybody in the joint wondered what in heck Frank Zaic's YEARBOOK was. Frank Buck, yes. But Frank Zaic? But we modelers sure as heck knew who F.Z. was. That must have been the year "the wasp" sneaked into room after room, painting the projecting toes of sleeping modelers with varied colored dopes. That was one Nats where nobody could say he never slept. (Let's see your toes, bub!) Or was it the year somebody entered a live duck? No, must have been the year the indoor modelers used our bath tub for making microfilm. Maybe that's why we can't make indoor models. Say, what were we talking about?

▸ Old timers don't need an introduction to Frankie. Newcomers should not. But newcomers may not recall the annual Zaic round-up of model designs from all over the world, sprinkled liberally with the publisher's ideas on design. Well, Frank has been hiding in Ithaca, New York, ostensibly—what a beaut of a woid—to attend Cornell but, really, we suspect, to put together a 208-page yearbook. After a lapse of so many years this is indeed, an important event, part and parcel of modeling, just like fighting over rules. We aren't going to spoil a treat by trying to describe its contents. Suffice it to say that Man At Work has been making use of midnight hours, ordinarily sheer waste, to examine the many detailed three-views. Even too much work to count them all. Also, that Frank has some new and challenging stuff about why models sometimes do funny things. And also that he would have to sell 25,000 copies to break even on his time and expense. So after you buy your next copy of M.A.N., make Frank Z's new book a second must item on your list.

▸ Thanks to Lew "Barnstormer" Andrews, it has now been confirmed that one of our medium aged sons can so read and write. The contrary has been considered a known fact. After the recent We Test on the *Profile Trixter Trainer*, we handed the young man of one these kits. He put it together despite advice and swiped the "23" out of big brother's stunter. So the *Trainer* was carted along on an rc session. Real windy, for even *Windy Joe* blanched after a wild flight. Rosenstock's 12-pounder floated like a feather. A couple of ex-ukie men tried to teach him to fly in this wind. The show was hilarious. What crack-ups. That plane got dived in again and again and went right on flying. On Monday night, the new pilot brought home from school a carefully wrought diagram, showing a circle, the plane, the wires bent in the wind, the wind—with a big ole peak on the upwind side of the circle and the word "push" going in the same direction. It was a nice thing to see how modeling could make a kid sit down and analyze a situation—and prove he can write! How could we lay down the law?

▸ George Aldrich, the chap who made the grade in stunt last year, won't like this but, being in Texas, don't see how he can stop us. C. O. Wright had asked us during the last Nationals—as he did lots of other people—if we had seen any instances of real sportsmanship that would qualify a guy for that reward, one of the nicer customs at the big sentimental meet. So happened that we had seen Aldrich win in stunt, then lose enough points on an over-run to end up down the list. Here in the east the baffled flier would have cleaved the judges from head to toe. George's face, already red from the Dallas sun, did seem brighter but he made the grade. So we mentioned G.A. Comes now a letter from Paul Gilliam. (Let's leave George up in the air for a minute.)

▸ Last year at Dallas had asked Paul about publishing a cute payload in M.A.N. Saw it make three swell flights afterwards but Paul is one of those modelers who wants things super and apparently he didn't think the payload super—yet. Almost a year later Mr. "Civy Boy"—one V and not two, Paul corrects us—has this nifty package all wrapped up (*Continued on page* 8)

Now Thimble-Drome Takes to the Air...

THE FIRST REALLY DIFFERENT ENGINE SINCE THE GLOW PLUG

NEW THRILLS IN ½ A PERFORMANCE

Announcing the Thimble-Drome SPACE-BUG

LOOK! all these Features in one engine for

Superior performance in speed, stunt, sport, free-flight, payload, etc. Visit your dealer and look it over.

1 Speeds that will exceed your wildest hopes.

2 Power . . . Stunts ships that most .049s will barely fly.

3 Easy starting . . . even when brand new.

4 No break-in necessary. Install, crank and fly.

5 *First flight amazing?* Wait until it's had a few hours and really gets hot.

6 Generous sized stunt tank. Stunts, loops, flies upside down with never a miss.

7 Engine mounts with cylinder in *up, down, right* or *left* position.

8 No rubber hose or external fuel lines.

9 Air filtered through screen of 10,000 holes per square inch.

only $6.95

10 Needle valve removed from exhaust and propeller . . . cool, safe to adjust.

11 Equipped with a plastic-coated wood propeller . . . Smooth for performance . . . Strong for safety.

12 Quick and easy to take apart and re-assemble. Rugged construction requires only reasonable caution.

also announcing

The NEW Thimble-Drome HANDY REEL

● Beautiful two color plastic control handle, with a separate spool for each line. Any size line, wire or braided, can be used. Holds up to 200 feet or even more of small sizes on each spool. To use, snap the dogs back—pull out lines to desired radius—adjust lengths to desired handle position—and reset dogs, which *positively lock spools.* If you break or kink a line, merely cut it off and pull out some more and resume flying. Easily loaded with the wire of your choice. Have one loaded and ready with each size line you use.

L. M. COX MFG. CO., Inc. • P. O. BOX 476, SANTA ANA, CALIFORNIA

Scrap ...Box

by Jim Saftig

They're flying team indoors with 25¢ rubber scale kits. And a couple of other things, too, including something called the Nationals.

Scrap Box sat in on most of the discussions of the outlines of the National's events. Missed the point system deal, doggone! Like the idea of a u-control champ and a free flight champ. Grand National Champ sounds right, too. Our thought in regards to the champs was to have the u-control lads fly any events they wanted to as long as it was u-control. The free flight modelers would follow the same pattern for points per placing in that event. Grand Nat's champ would have to fly at least some in both events to get the "mug." Can't see telling anyone what he *has* to fly to make the "champ" effort.

Actually, top times will be listed in numerical order regardless of age bracket. One hundred points will be given for the first place win and one point for the bottom place. A straight line will slant down a chart between the two (top and bottom) times, and points will be awarded per your place on the chart. Top Junior, Senior, and Open Contestants will be judged against the entire field for their respective point placements. With this method it's possible for a contestant to beat everyone in his age group and still receive much less than the top 100 points. How?

First place winners (in the age brackets) may be far down the line as far as the 100 points is concerned, because of the possibility of many other age bracket contestants posting better times ahead of him. That's the "cropper" fellows, you might get a first but not maximum points toward your individual championship "mug." This fact plus the listing of events that a contestant *must* fly in to clip a title seem to be the weak points of an otherwise well set up deal. Should see a plenty clarified picture of the event champion event system in next year's rule book. The committees have worked hard, and C. D. John Bollinger will no doubt sprout a few new gray hairs!

Indoor modelers will have a microfilm tank and, believe it or not, aged and made up microfilm for repairs. Half-hour stop watches, too, so no slip-ups in timing. Times will be posted periodically on a large blackboard.

Bob Linn has been putting plenty of time in on the AA Scale Event and is a definite "Man Friday" as far as the event is concerned. Very new, yet, the event has become very popular. Definite rules have been set up and fliers should become familiar with them. Fidelity to scale, scale appearance, details, engine and cowl, cabin/cockpit interiors, finish, and markings will be strictly judged. Remember, the models must be flown as judged. No alternations permissible before flights. Might mention that a brief written description of any unusual details or construction is recommended. You'll have top notch judges from the Institute of Aeronautical Sciences Historical Society and nothing will escape unnoticed.

• • •

Here's one to add plenty of interest to club meetings if you haven't tried it yet. Indoor Tether Team Racers. Jobs are rubber powered and rules are simple. Any 25 cent flying scale kit may be entered. Prop and plane must be built per kit plans. Must be painted and carry I.D. numbers. Any amount of rubber may be used. Flying pylon 18" high and tethered line must be four feet from center of model. One minute allowed for first wind by hand. Races held in heats. First race—5 laps;. second—10 lap consolation; third—20 lap main event. All winding must be done by hand, and after the first flight in the longer races, you grab your ship after each landing, wind, release, and get going again. Plenty of thrill and tired hands there. Two or more pylons can be used. The Airliners had five, and 23 planes were entered in the last contest. Quite a madhouse with plenty of thrills and fun for all. Try this one if your meetings are getting a bit monotonous.

• • •

Quite a few questions about stunt. Lots of stunters tend to crawl down the line on vertical and overhead eights. Let's check for a few of the "gremlins." How is your engine placement? At least set it at zero degrees thrust or out one or two degrees. Outer wing still climbing up on you in the tougher maneuvers? Check the leading and trailing edges for warps. Simple to get them out with a bit of heat. Heat the wing over the oven (no open flame) and as the silk or paper warms to the touch, gradually twist in the desired direction until you go past the true stage slightly. Walk away from the oven to a cooler place and hold the wing until it cools. A simple jig can be made for alignment with a few pieces of wood; this will eliminate holding the wing until it cools. Allow the wing to set up thoroughly before checking again. It may take more of this operation to get the desired effect but it usually works. If the "gremlin" still hangs on, a small amount of added weight in the outboard tip should knock him off. It's very possible to build in weight in the wrong places and it doesn't take much to make trouble. Don't go overboard on the weight as it may give you very undesirable flying characteristics when making tight corners. Remember to always keep the wind at your back when stunting.

• • •

Had a very interesting chat with E. J. Brown, about flying lines. Yep, same guy who does the bang-up job with the R.C. jobs. Safety factors were the main topic and Brown's research and compiled figures are more than slightly interesting. With the advent of the glow plug, the size and length of control lines used on model planes is about the biggest factor in safe flying. Stunt jobs average from 60 to 80 mph and the speed jobs are over the 150 mph marker. Terrific speeds have made the true modeler safety conscious. Rusty and kinked lines are "taboo." If the "Snerdtype" flyer knew how many times the whole load of his ship was hanging on one wire, he might go up a few thousandths in line diameter. Can't figure a character working weeks and months on a job and then blundering with unsafe lines. One of Brown's charts on a articular type of music wire gives the following (*Continued on page* 46)

PLENTY OF PARTS FOR SUPER-CYCLONE

ON HAND AT ALL TIMES

Get genuine Super-Cyclone Engine parts from your local dealer. If he does not have them send us your order and your dealer's name and address.

WRITE US NOW

NEW LOW PRICE

NOW ONLY $12.95 AT YOUR DEALER

DEALERS

Stock up now . . . with genuine Super-Cyclone parts and develop greater value in increased service volume.

CONTACT YOUR LOCAL JOBBER

SUPER-CYCLONE, INC.

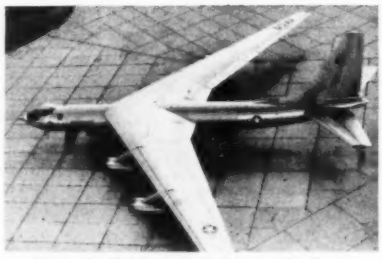
GRAND CENTRAL AIR TERMINAL
1310 AIRWAY
GLENDALE 1, CALIFORNIA

PLANES IN THE NEWS

The plane on the cover, the French Mystere, sweptwing version of the *Ouragan*. Potent job.

by DAVID ANDERTON

A big hangar flying topic of the month is Boeing B-52 and Convair B-60. Here is a significant, valuable comparison.



Convair *B-60*. Suited for production.

The secret is out. Here are the first unretouched pictures that the Air Force has released on our two intercontinental jet bombers, the Boeing *B-52* and the Convair *B-60*.

They're worth careful study, because they reveal many of the detail design features of the two craft. And they help point out the difference between the *B-52* and the *B-60*, differences in the design philosophy of the Boeing and Convair teams.

First, for a few general comments. Both these planes are intended to be the jet backbone of the USAF's Strategic Air Command. As SAC gets these new craft, the Boeing *B-47* will presumably become a medium-range medium bomber, and the Convair *B-36* will go to the second-string team for heavy pounding.

You'll note also that both planes have eight engines—they happen to be the Pratt & Whitney *J57* turbojets, rated in the neighborhood of 9,000 lb. sea level static thrust. And about there, any points in common between the two aircraft cease.

Here's how they stack up dimensionally.

Piper's *Twin Stinson* over Loch Haven.

Convair's *B-60* is the larger, with a wingspan of 206 ft., length of 171 ft. and overall height to top of rudder of 60 ft. 9 in.

The Boeing *B-52* has a span of 185 ft., a length of 153 ft. and height to top of rudder of 48 ft.

Boeing's entry is basically a new airplane, using some of the aerodynamic and structural experience of the earlier *B-47* six-jet Stratojet. At a glance you recognize some of the family characteristics—the landing gear which retracts into the fuselage and which uses outrigger wheels at the wingtips, the flexible sweptback wing, the pod-mounted turbojets. But the second look tells you that there's lots new that wasn't on the *B-47*—the gigantic tail, the slab-sided fuselage, the tricky control system.

On the other hand, the Convair *B-60* is basically a modification of the "Big Stick", the *B-36*. Convair rotated the wing panels to get the necessary sweep, slung the jet engines under the wings, redesigned the tail surfaces and had a new eight-jet momber.

Both these descriptions—brief as they are—do nothing to convey the manhours of thought and design that went into both these aircraft. That you have to imagine. But if you think a little more about it, you may see that the Convair job probably took less overall time, and would cost less either in quantity or for the experimental ship. In fact, somewhere I seem to have read that the *B-60* uses 60 percent of the *B-36* parts. This is economy, and economy is what we need in large chunks right now.

Boeing, with a new design, may possibly have a better airplane. That's an arguable point, and I'd hate to be on the receiving

Cessna *Birddog*. Makes a swell model.

end of either company's blasts for belittling its effort. I think it's fair to assume that the Boeing performance is better than the Convair. After all, they have the same power exactly. Weight is not of too great importance for high speed and in a reasonable weight range, the race is to the cleaner. I vote for the Boeing *B-52* on that basis. But if I had to buy them, I might settle for the Convair.

And now, after that remarkable display of impartiality, let's have a detailed look at the two planes.

Boeing B-52—Photos show two of these craft, with serial numbers 9230 and 9231. All the flight shots are of 9231, which bears the designation of *YB-52*. Contract for this ship was signed in 1949 and work on the tangible hardware probably began then.

Wing of the Boeing job follows the lines of the *B-47*—high degree of sweep (maybe as much as 40 deg.) and extremely flexible structure. The control system and flaps are different, though, and from here on for a while, I am just trying on a guess for size.

A little bit inboard of the mid-span point, there are some kind of control surfaces which have, according to the flight photos, differential motion like ailerons. These surfaces are between the two portions of the wing flap. In one or two of the flight shots, you can apparently look right through the aileron—or where the aileron should be. You know it's not thin fabric because we don't use fabric-covered surfaces on high-speed airplanes. So it must be holes in the surface. But we don't put holes in ailerons, either. So? It must be spoilers, which do have holes.

Let's assume that the lateral control of the

Otter, bigger than *Beaver*, DH of Can.

Boeing *B-52* is done with a combination of separate ailerons and spoilers. There's a single flight picture which tends to support this. The ailerons are shown deflected for a turn to the right. And the right spoiler is open, which would spoil the lift of the right wing (dropping it) and increase the drag at the same time (thus tending to turn the airplane to the right). Thus it figures, and if I'm wrong, will Boeing please write and tell me so?

Wing flaps are huge and apparently Fowler type. Flap leading edge extends nearly to the wing trailing edge when flaps are down, and the deflection is correspondingly large.

While we're looking at the wing, notice that the nacelles jut forward further than they did in the *B-47* and that they are higher with respect to the wing chord line.

The *B-52* fuselage is huge and slab-sided. It reminds me somehow of British design practice in World War 2. The fuselage is characterized by a large number of skin wrinkles under the trailing portion of the wing, and a huge number of doors in the belly. Some of these doors cover bombs, other cover landing gear. The first question you ask when you see the belly has something to do with what a short bomb bay the *B-52* has. But that figures, because there is really no need to carry enough A-bombs for a salvo. Then you will also notice that there are four doors, each shaped like an oversize home plate and each covering a landing gear well. These doors are staggered in pairs on the fuselage belly, the left door being ahead of the right door in both pairs.

There's (*Continued on page* 50)

AMERICA'S HOBBY CENTER, INC.

SAN FRANCISCO • DENVER • CHICAGO • NEW YORK BROOKLYN • NEW ORLEANS

ESTABLISHED 1931

21ST YEAR

The only model store that gives you . . .

1952 LARGEST MODEL & SUPPLY FIRM IN AMERICA

NO EXTRA CHARGE!!

50 items with gas engines, incl.:

(with diesel or glo engines, all needed items are given). Items include • Quality Coil • Everlast Condenser • 3-way Plug Wrench • Hi-Tension Wire • Stranded Ignition Wire • Insulated Coil Holder • Correct Size Prop • Presto Engine Starter • Complete Instructions • Battery Box • Slide Switch • 24 pg. Engine Manual • 4 Mounting Bolts • 4 Mounting Nuts • 4 Wiring Lugs • Spark or Glo Plug • Identification Tags • Motor Cover • Speed Indicator • Log Book • Trouble Shooting Chart • No. 70 Oil • Membership in Modelcrafters of America • A.M.C. Guaranty • 128 pg. Giant 2-Color Catalog • Plus Free Postage, Packing and insurance if ordered by mail.

12 items with gas planes incl.:

• Correct Rubber Wheels • Pro All-Metal Knife • Giant Construction Manual • Speed Indicator • Log Book • Complete Full Size Plans • Insignia • Membership in Modelcrafters of America • 128 pg. Giant 2-color Catalog • Plus Free Postage, Packing and insurance if ordered by mail.

(Premiums on Planes selling at over $1.50 only)

1. One year subscriptions to model Airplane News, Air Trails and Flying Models or its equivalent value to our regular customers.
2. 14-Day Money Back guarantee on unused purchases.
3. Unused purchases exchangeable within 14 days.
4. No postage or packing charges—we insure safe delivery ANYWHERE IN THE WORLD.
5. 24 hour service. Mail addresses in Chicago, San Francisco, Denver and New Orleans which will airmail your orders to our N. Y. office for prompt shipment.
6. Most complete model stock in America—gas, rubber, solids, etc. if it's advertised, we can usually supply it.
7. Competent understanding of your modeling problems.
8. No "minimum" orders. Any order is welcome.
9. With engines, 50 ITEMS WORTH OVER $7.00 AT NO EXTRA COST. SEE BOX ON LEFT.
10. Rubber wheels, knife, etc., etc., with gas planes. 12 ITEMS WORTH $3.50 AT NO EXTRA COST. SEE BOX ON LEFT.
11. Membership in "Modelcrafters of America," the club that keeps you up to date on gas modeling and SAVES YOU MONEY ON YOUR PURCHASES. OVER 90,000 members.
12. Illustrated giant 2-color 128 page catalog with every order.

BURIED IN THIS AD are most of the new items. Sometimes there isn't room or space to include them. But, if available, we have it.

N. Y. CITY MODELERS

TWO STORES TO SERVE YOU!

Largest stock in the country at either of our two stores . . .

136 W. 22nd St., New York City

1065 Broadway, Brooklyn, N. Y.

Experts on hand to help you with your problems. Complete stock including engine parts and service at both stores.

ENGINES

GLO ENGINES

Atwood Wasp (FF)	(AA)	6.75
Atwood Wasp (U-C)	(AA)	8.50
Baby Spitfire	(AA)	8.45
Baby Spitfire Pkge	(AA)	8.95
Cox .09, .15, or .19	(A)	8.95
Forster F 29 Glo	(B)	14.25
Forster F 31 Glo	(C)	14.25
Fox 29	(B)	14.95
Fox 35	(C)	14.95
Fox 59 Stunt	(D)	29.95
Hornet 19H	(A)	19.98
Infant Torpedo	(AA)	8.50
K & B Glo Torp 29	(B)	15.95
K & B Glo Torp 32	(C)	15.95
K & B Torpedo .049	(AA)	6.75
K & B Torpedo 19	(A)	13.95
McCoy 5	(AA)	7.95
McCoy 19 Sport	(A)	9.95
McCoy 19 R.H.	(A)	10.95
McCoy 29 Sport	(B)	11.95
McCoy 29 R.H.	(B)	14.95
Mohawk Chief Glo	(B)	9.95
Ohlsson 23 Rx Deluxe	(B)	11.95
Ohlsson 29 Glo	(B)	13.95
Ohlsson 33 Glo	(C)	13.95
Ohlsson 29 Marine	(B)	14.95
Ohlsson 60 Glo	(D)	13.95
O.K. Bantam Glo	(A)	9.95
O.K. Cub .099	(A)	5.95
O.K. Cub .099 Pkge	(A)	7.75
O.K. Cub .049	(AA)	4.95
O.K. Cub .049	(AA)	5.25
O.K. Cub .049 Pkge	(AA)	6.75
O.K. Cub .074	(AA)	5.95
O.K. Cub .074 Pkge	(AA)	6.75
O.K. Cub .049 Kit	(AA)	3.95
O.K. Hotbead Glo	(B)	10.95
O.K. Super 60 Glo	(D)	14.95
Royal Baby Spitfire	(AA)	5.95
Royal Spitfire	(AA)	7.95
Spitfire	(AA)	6.45
Spitfire Senior Pkge	(AA)	8.45
Veco 29	(B)	14.95
Veco 31	(C)	14.95

IGNITION ENGINES

Dennymite	(C)	6.95
Forster 99	(E)	19.75
Hornet 60	(D)	10.95
Judco Kit	(B)	9.95
K & B Torpedo 24	(B)	16.50
McCoy 19 R.H.	(A)	10.95
Mohawk Chief	(B)	10.95
Ohlsson 23 RV Deluxe	(B)	12.95
Ohlsson 29 Rotary	(B)	14.95
Ohlsson 33	(C)	14.95
Ohlsson 60 Lane	(D)	14.95
O.K Hotbead (Sup 29)	(B)	12.95
O.K Super 60	(D)	13.95
O.K. Twin	(D)	14.95
Phantom P-30	(B)	13.95
Ram	(B)	8.75
Rogers 29	(B)	9.95
Spitfire	(D)	24.95
Super Cyclone Dual	(D)	13.95
Super Cyclone	(D)	12.95
Thor	(B)	9.95
Thor Kit	(B)	6.95
Wasp Twin	(D)	29.50

AIR ENGINES

O.K. C.O.2	8.95

JET ENGINES

Dyna-Jet Redhead	35.00
Jetex 50	1.95
Jetex 100	4.50
Jetex 200	8.95
Jetex 350	8.95

ELECTRIC MOTORS

Dynamite	1.98
Imp Outboard	3.50

ENGINE PARTS!!

EVERY part for EVERY ENGINE listed on these pages is IN STOCK at America's Hobby Center. Send today for the parts you need to b...p your engine in flying condition.

HO RAILS

Did you know A.H.C. now carries a complete line of HO? Write in for your needs!

FREE-FLIGHT PLANES

Baby Phoenix 36" AA	1.75
Bootstrap 40" AA	2.50
Buccaneer B Special 54" B	3.95
Brigadier R.C. 38" AA	1.95
Champion 36" A-AA	2.50
Civy Boy 24" AA	1.50
Civy Boy 31" AA	1.95
Commanche 36" AA	2.75
Dakota 24" AA	1.75
Folly 32" AA	1.75
Fu-bar 36" AA	1.75
Fu-Bar 65 65" B-C	6.95
Hawk 27" AA	1.50
Jasco R.C. Master 49 A	9.95
Jasco Royal 44" AA	2.75
Jetsopter (Jetex 100)	5.75
Junior Phoenix 36" A	2.25
Li'l Bastard 27" AA	1.50
Lift Master 34" AA	2.25
Little Twister 36" AA	1.50
Lil Rascal 28" AA	1.50
Livewire R.C. 48" AA	6.95
Luscombe Sedan 76" C-D	7.50
Luscombe Silvaire 65" A-B	4.95
Mini-Hogan 34 34" AA	1.95
Mini-Hogan 45 45" AA	2.95
Navajo 36" AA	2.50
Nomad 18" AA	1.75
Phoenix Flash 32" AA	1.75
Phoenix Shipper 31" AA	2.25
Pilot Fighter 34" B-C-D	2.50
Powerhouse 33" AA	1.75
Powerhouse 41" A	3.95
Powerhouse 56" B	4.95
Profile Powerhouse 24" AA	1.95
Sandy Hogan 70" B-C	5.95
Scat Pete 34" AA	2.95
Shadow 32" AA	1.95
Sioux 36" AA	1.75
Skylark 31" AA	2.00
Sniffer 29" AA	1.75
Spitfire Jr. 36" AA	2.50
Sport Prince 35" AA	1.95
Super Brigadier 56" B	5.95
Super Flash 53" A-B	4.50
Taylor Cub 35" AA	2.00
Thriller Cub 29" AA	1.50
Trixter Pixie 28" AA	1.25
Yank 23" AA	1.50
Zeek 33" AA	2.00
Zeebin 33" AA	2.50
Zeke 50" A-B	4.95

U-CONTROL PLANES

A12 Twin 25½" AA	2.95
Acrobat (Whip)	2.95
Aeronca Sedan 22" AA	1.95
A. J. Fireball 36" B-C-D	6.95
Aeronnie 17" AA	5.95
All Amer. Trainer 21" AA	1.75
All Amer. Stunt Trainer Jr. 26" A-AA	2.50
All Amer. Stunt 36" A-B	4.95
All Amer. Sr. Stunt 51" B-C	6.95
Baby Ace 18" AA	2.00
Baby Barnstormer 23" AA	2.95
Baby Cinch 30" C	2.50
Baby Clown 22" AA	1.50
Baby Di-Doe 21" AA	1.75
Baby Era 18" AA-A	2.50
Baby Era Ripe 16" AA	2.50
Baby Sky Boy 36" A-B	2.95
Baby V Shark 28" A-B	2.95
Barnstormer 47" A-B	3.95
Bat 32" C-D	2.00
Bearcat 35" C-D	4.95
Bee 24" B	1.50
Beechcraft Half A 16" AA-A	2.95
Ben Howard's Pete 30" B-C-D	5.95
Bipe Stunt Trans. 22" B-C-D	3.95
Boeing P26A 18" AA	2.95
Boeing P26A 28" A-B	6.95
Brave 36" A-B-C	4.75
Cessna 22" AA	1.95
Cessna 36" B-C	5.95
Chief 51½" A-B-C-D	7.50
Corsair 17" A-AA	2.95
Curtis P40F 20" AA	2.95
Di Doe 28" A-B-C	3.95
Dimeco Spl. 24" C-D	7.50
Douglas Navy Skyraider (Plastic) 12½" AA	5.00
Duster 15" AA	1.50
Duster 15" AA (Incl. Engine)	7.95
Dynamic 26" A-B	3.50
F4B Supersonic 28" AA	2.50
F4B Supersonic (Incl. Engine)	7.80
F6S Supersonic 28" AA	3.95
F6S Supersonic (Incl. Engine)	8.95
Fire Baby 19" AA	2.50
Fireball (Incl. Engine)	7.95
Flip-Flap 24" A-B	2.50
Flivver 24" B-C (all alum.)	3.95
Flying Clown 28" A-B-C	1.95
Freshman 9 24" A	2.95
Freshman 19 30" A	2.98
Freshman 29 36" B	3.98
Great Lakes Trainer 27" A-B	5.95
Guided Star 24" A-B-C	5.95
Guided Starlet 24" AA	2.75
Hell—Razor 14" A	3.95
Hell—Razor 15" B	6.80
Hell—Razor 18" D	8.95
Hell—Razor 9" AA	2.00
Howard Ike 20" AA	3.00
Infant Wagon 20" AA	1.75
Junior Stunt 9 21" AA-A	3.49
Junior Stunt 19 34" A	3.98
Junior Stunt 29 40" B	5.95
Key 29" B-C	5.95
Key—Det 18" AA-A	2.95
Kingpin 28" A-B	2.80
Knockout 18" AA	2.50
Li'l Duper Zitch 32" A-B	3.95
Little Ace 18" AA-A	1.95
Little Bipe 16" AA-A	1.50
Little Devil 18" AA-A	1.50
Little Mustang 18" AA	1.95
Little Sabre 18" AA	1.95
Little Schmoe 17" AA	1.50
Luscombe Sedan 25" AA	1.25
Maverick 24" AA-A-B	1.95
Minnow 28" A-B-C	3.95
Mini-Zitch 19" AA	1.25
Monocoupe 36" B-C	4.95
Mr. Mulligan 32" B-C (Sterling)	4.95
Mustang 37" A-B (Berkeley)	5.95
Mustang P51 19" AA (Airline)	1.25
Mustang P51 36" B-C (P.D.Q.)	2.95
Mustang (Sterling) A-B-C 38"	2.95
New Era 28" A-B-C	4.95
N.A. P51 14" AA (Cox)	2.95
No. Amer. T6 (SNJ) 31" A-B-C	4.95
Pagoose 32" A	3.95
Pee Wee Duper 17½" AA	1.95
Pee Wee Pursuit 16" AA	1.25
Peter Pan 16" AA	1.50
Phantom Era 28" A-B	3.50
Piper Cub 22" AA	1.95
Piper Cub Trainer 23" AA	1.95
Piper Vagabond 36" A-B	3.95
Pitts Special 36" A-B	4.95
Pitts Fighter 36" B-C-D	5.95
Presto Liner 20" A-B-C	5.95
Primer 18" AA	1.60
PT Trainer 28" A-B	1.99
Rascal 18" AA	1.00
Ringmaster 42" B-C	2.95
Rookie Trainer 36" B-C-D	2.95
Ryan S T 36" B-C	4.95
Scout 24" AA	2.50
SK 5 17" AA	2.50
SK 5 Sport B-C-D	5.95
Senior 9 27"	3.49
Senior 19 34"	3.98
Senior 29 38"	4.98
Senior Paddlejumper 25" A-B	1.95
Skippy 42" C-D	4.95
Skylander 16" AA	2.50
Sophomore 9 28" A	2.49
Sophomore 19 28" A	2.98
Sophomore 29 29" B	3.98
Speedster 12" AA	2.50
Sportwing 36" A-B-C	3.95
Spunk 39" A-B-C	9.75
Stinson 22" AA	1.95
Streamliner 25" B-C-D	4.00
Stunt Runt 10" AA	1.25
Stuntmaster 28" B-C	5.95
Stuntwagon 30 64" B-C	5.95
Stuntwagon 56" D	7.95
Super Clown 38" B-C	2.95
Super Duper Zitch 52" C-D	5.95
Super Knock-Out 24" A-B	3.50
Super Squirt 21" (Jet)	3.95

RADIO CONTROL PLANES

Brigadier R/C 38" AA-A	1.95
Jasco R/C Master 49" AA-A	9.95
Livewire R/C 48" AA	6.95
Buccaneer B Special 54" B	3.95
Buccaneer C Special 72" C	5.95
Super Brigadier 56" B-C	4.95
Super Buccaneer 90" C-D	10.95
Trixter Trainer 108" D-E	17.50
Luscombe Sedan 76" C-D	7.50

RADIO CONTROL

Aerotrol Kit	22.50
Super Aerotrol Receiver Kit	15.95
Super Aerotrol Transmitter Kit	21.95
Aerotrol Escapement	7.95
Citizenship Receiver	29.95
Citizenship Trans-mitter	39.75
Citizenship Escapement	9.95
ECC Transmitter (with crystal control)	39.95
Same in kit form	27.50
ECC Transmitter	34.95
Same in kit form	19.95
ECC Receiver 950-A	18.95
ECC Receiver 951	18.95
ECC Escapement	5.00
ECC 2A Relay	6.50
3A5 Transmitter Tube	2.50
XFG1 Receiver Tube	3.50

ACCESSORIES

PROPELLERS

Rite Pitch or Super Stunt 5"-5½"-6"-7"-8"-9"-10"-11"-12"-13"-14"-15"-16"-17"-18"-19"-20"-21"-22"-23"-24"-25"-26"-27"-28"-29"-30"

8", 9", 10" on 4, 6, 8 pitch	.25
11", 12" on 6, 8 pitch	.35
13", 14" on 6, 8 pitch	.50

Scamper Plastic 5½"-3p., 6" 4p. .25; 7" 4p., 45 10" 10p., 11" 6 p., .65

Super Spl. 8", 9", 10" in 4, 6 or 8 p. .30

Veco 6" 3p. 4p. 7 4p. 5p. 6" 5p. 6p. 7 6p., Tp. (6"—38c, 7" & 8"—39c) 9 —38c)

Kavan 5-3, 5½, 4, 6 3, 6 4, 6 8—15c, 7 4—20c

Also Ohlsson, Flo-Torque, Power, Top Flite, Tornado, Textors, etc.

METAL GAS TANKS

Dale Stunt Tanks—All Sizes: .45

#1—1"x1"x8"; #4—1"x1"x8"; #2—2"x1"x1"; #5—2"x1"x1"; #3—2½x1"x1"; #12—1"x1½"x8"; #15—2½"x1"x8"

From: 1"x1"—or 2 hor. or ver. .50; 1"x1"x2.50; .60; 1"x1"x3"; Wedge .60; 1"x1"x2½", End Stunt .80

Berkeley: AA—.60, A—.75

Bee—.75, C—.85, D—.95

Pylon Plastic: Small 75, Medium 95, Large 1.25

Also Maeco, Acme, etc.

IGNITION COILS

O.K.	2.50	Rogers 2.00
O.K. Twin	4.00	Wilco 1.95

SPARK & GLO PLUGS

Champion Glo V, V2, V3	.75
Champion V, V2, V3, VR1, VR2	.50
McCoy Hot Point	.65
Ohlsson Glo (V, V2 or AA)	.65
O.K. Glo-plug (V2 or V3)	.50
K&B V2, V3 .60, Everglo	.75

IGNITION ACCESSORIES

6 ft. Hook-up wire	.25
Austin Booster Plug-in	.20
Midget Switch, slide—.25 Turn	.50
Ohlsson Snap-Pack	.35
Condenser .20, Metal	.35
Ohlsson Instant Clip	.15
Alligator Clips	.10

PROP SPINNERS

1"-.35c; 1½"-.50c; 2"-.95; 2½"-1.10

2" Needle Nose 1½" dia. 1.15

" " 2" 1.20

Plastic 1½" 2" .25

Scamper Plastic 1½", 1¾", 2", 2½" .45

WHEELS

Semi Pneumatic (pr) 2"	1.10
2½"	1.25 3" 1.75
Sponge Rubber (pr) 1"-1" 30c	
1¼"-1½" 35c 1¾"	.40
1¾"—40c, 2"—	.75
Tail Wheels ½", 1"	.15
Tricycle Fixed, (pr) 1½" or 1¾"	.40
1½", 2"—80c; 2½", 2½"—60c	
2½"	1.00
2½"	1.25
3½"	1.50

AA ACCESSORIES

E Z Minimount	.85
.004 or .006 x 2—36	.35
.006 x 2—.50; .006 x 3	.50
Spinners (state engine)	.65
Presto Starter (state engine)	.75
Tanks (state engine) .50, .60,	.75
Neoprene (ft)	.15

MISCELLANEOUS

Ball. Box Pen., Medium, Regular	.40
Brass Tubing 1/16", 3/32", 1/8"	.20
Copper Tubing ¼" OD, per ft.	.30
Finger Guard	.40
Fuel Pump (pt. or 1 pt.)	.65
Presto Disc Starter	.35
Metal Motor Mounts, Sm—30c; Lg	.40
Needle Valve Exten. flexible	.25
Neoprene Tubing, per foot	.30
Transparent (reg. or AA) ft.	.15
Spitfire Timer Valve	2.96
No. 70 oil, 3 oz.—25c; pint	.40
Plastic Envelopes—1st set of 2	.50
Plug Wrench, 3-way—15c; 4-way	.25
Plywood (6"x12") 1/32"	.25
1/16"—25c; 1/8"—30c; 1/4"	.35
Silk per yard	1.50
Socket Plug Wrench, 4-way	.60
Starter Cord	.10
Flexible Needle Valves: Cub, Royal Spitfire, Spitzy—75c; Wasp, Baby Spit, Infant, Terp Jr., Torpo 49—50c; Universal Needle Valve (A-B-C engines) 50c; Flexible 75c	
Vibrator	1.95
E-Z Running Stand	1.50
Pilot Heads	.08, .10, .50

SPECIAL SOUVENIR BARGAIN

The manufacturer of a well-known engine, after selling 20,000 at $9.95, has decided to go out of production. The remainder of 1,000 complete sets of finished and unfinished castings and parts: Cylinder, piston, piston pin, connecting rod, needle valve, gas line, tanks, crankshaft, crankcase, cam, etc., including screws, gaskets, nuts, etc.

You get a complete set, except spark plug and tank. An interesting souvenir of a model engine in the raw for your den or desk.

No. J9 . . . $1.00 per Complete Set

SPECIAL BARGAIN IN PROPELLERS

SPECIAL BARGAIN IN PROPELLERS

25 ASSORTED FOR $1.00

We have purchased 50,000 assorted gas model propellers from the country's largest prop manufacturer.

They are ALL PERFECT and range from Champion semi-finished (listing at 5 for $1.00) to finished and lacquered props that sell up to 45c each regularly. Various pitches, in sizes from 7" to 14".

No selections, please, but we will send you a fine assortment of 25 for $1.00, if accompanied by an order for anything advertised in this magazine. MONEY BACK GUARANTY.

Propeller Sale—8 For 1.00

We don't believe in hoarding, but you won't get a bargain like this anywhere else.

By making a tremendous purchase, AHC has acquired from Rite-Pitch a fine line of finely finished and lacquered high grade, square-tip propellers at a very low price and is passing the savings on to you.

8"-6p., 8"-8p., 9"-6p., 9"-8p., 10"-6p., 10"-8p., 11"-6p., 11"-8p., 12"-6p., 12"-8p. ALSO 5"-3p., 5½"-4p., 6"-3p., 7"-3p.

SALE SPECIAL

WINSTON GAS ENGINE LIBRARY

FIVE BIG BOOKS FOR ONLY . . . 1.49

REGULAR PRICE $3.00 EACH A $5.00 VALUE FOR ONLY $1.49

Here is a BARGAIN no modeler (beginner or expert) should pass up. FIVE separate volumes covering every phase of gas and glo engine operation, plus building and flying powered free-flight and control line airplanes, plus lots of other information on boats, cars, forming model clubs, etc., etc. All written by Bernard A. Winston, whose books and articles have been read by over 1,000,000 modelers. Well over 200,000 copies of these books were sold at $1.00 each

1. **MODEL GAS ENGINE HANDBOOK** — 150 pages, 80 illustrations. A complete manual of the theory and practice of Model Gas Engine operation. Includes specifications of principal engines, blueprints, directory, dictionary, etc.
2. **GLO ENGINE HANDBOOK** — 64 pages, 60 illustrations. A complete manual on Glo Engines—their theory, operation and care. Includes everything from buying your engine to breaking-in, flying and trouble shooting, plus dictionary, directory, prop size chart, etc.
3. **GAS MODELERS GUIDE** — 170 pages, 92 pictures and diagrams. Here is a book that really tells you about modeling. Contents tell all about free-flight and control-line planes, race cars and boats, radio control, winning contests, forming clubs, AMA rules, club directory, complete dictionary, etc. etc.
4. **CONTROL-LINERS** — How to build and fly them. Includes everything: how the sport started, types, designs, construction, power plant, propellers, contests, doping and painting, etc., etc. Covers the subject from A to Z.
5. **GAS MODEL PLANE CONSTRUCTION** — Over 132 pages and 200 pictures and diagrams. Give you the answers to every problem from tools needed to repairing the model. Covers free-flight and U-Control. Chapters include points and structures, fuselages, wings, engine and accessory mounting, sanding and finishing, assembling, covering, doping and finishing, repairs, etc., etc.

ALL 5 VOLUMES - 500 PAGES Only 1.49

DOPES (Cont'd U.S.A. Only)

Aeroglass Hot Fuel Proof (20c and 60c size) Fillercoat, Cements, Plastic Balsa, Cessna Green, Cessna Gray, Orange, Yellow, Corsair Blue, Curtiss Blue, Fokker Red, Black, Lambert Gray, Aluminum, Stearman Red, Stinson Green, White, Cream, Maroon, Olive Drab	
COMET (10c) Cream, Gray, Red, Glose Top Coat, Horizon Blue, Black, Insignia Blue, Orange, Maroon, Gold, Sanding Sealer, Silver, White, Yellow	
Speed-o-lac (10c and 35c sizes) Aeronca Orange, Army Yellow, Aeronca Yellow, Banana Liquid, Black, Gray, Chocolate Brown, Cub Blue, Cub Cream, Cub Green, Cub Yellow, Cessna Top Coat, Insignia Blue, Insignia Red, Metallic Blue, Olive Drab, Sanding Sealer, Silver, Stinson Green, Taylorcraft Cream, Taylorcraft Yellow, Tennessee Red, Maroon, Waco Blue, White, Undercoater, Dark Gray.	
CLEAR DOPE: Aeroglass 20c and 40c; Comet 10c and 25c; Speed-o-lac 10c and 35c.	
THINNER: Aeroglass 20c and 40c; Comet 10c and 25c; Speed-o-lac 10c and 35c.	

U-CONTROL ACCESSORIES

Adjustable Push Rod set	.25
Bellcrank 2" or 3"—10c, 4"	.15
BELLCRANK control lines .008, .010, .012 .5-8	.50
.008, .010, .012 .5-10	.60
.008, .012, .016 .5-150	3.00
Stranded .015, .021 50 1.00; 70 1.25, 200	2.50
Berkeley Metal Flight Reel	1.25
Berkeley Metal Handle	1.00
Controliner Flight Reel (with wire) AA—1.95, A-B	2.25
Elevator control horn; Veco	.20
Elevator hinges 4 for	.10
E-Z Flight Control Handle	.85
Flex Lead-in Wire AA or AB 3 ft.	.15
Instant-Use Handle, 5 or 8"	.50
Luxon Clips A, B, C or D Pr	.10
PYLON control lines .008, .010, .012, .014, .016 dia. 2.52 lines	.60
.008, .010, .012, .014, .016 dia. 2-70 lines	.75
Flexible 2.52 1.50; 2.70	1.95
Pylon Control line Reel	1.35
Pylon Plastic Handle 5"	.85
Reel Pal Reel	1.00
Simplex Handle & Reel	1.50
Stunt Bellcrank & Elev. Horn	.25
Swivels, small 35c pr., large	.20
Tommy Handreel	1.75
U Reely Contr.—7.50; cable	8.50
U-Reely Remote	12.50
Veco Bellcrank	.20 & .25
Wood Control handle	.25

MODEL BOATS

Chris-Craft 28" C-D	6.75
Chris-Craft Express 25" B-C-D	5.75
Chris-Craft Runabout 25" B-C-D	6.25
Harco 25" B-C-D	6.25
Owens Yacht 26" B-C-D	6.25
Vineyard 25" B-C-D	6.25
Dumas Electric Drive Unit for 6 above ships	4.00
Barkeye prefab 17" A-B-C	3.95
" Cabin Cruiser 17" ABC	5.95
C.C. Riviera 12" AA	2.95
C.C. Riviera 12½" AA-A	3.50
C.C. Special 12" AA-A	3.50
Higgins Speedster 16½" AA-A	4.95
Richardson Sedan 17" AA-A	5.95
Royal Skimmer (Incl. Engine)	10.95
Spitcraft Plastic (Incl. Engine)	14.95
Spitfire (Plastic)	1.00
Sterling C.C. Buce 19" AA-A	7.95
C.C. Exp. Cruiser 14" AA-A	3.50
Streeter 12" AA	3.25
Sea Maid 12" AA	2.98

RACE CARS

Half-pint (AA)	2.98
Ohlsson Complete with Engine	19.95
Tornado Complete with Engine	10.98
Cox T.D. Complete with Engine	13.95

DE LUXE HOBBY CATALOGS

25¢ — 128 page 2-color 9" x 6" catalog, *fully illustrated*. Over 10,000 items, including gas, glo, diesel, jet and CO2 engines, engine and rubber powered planes, boats, cars, solids of all kinds, tools, engine parts, etc., etc. PLUS pages and pages of accessories, engine parts, decals, wood, dope AND EVERYTHING.

10¢ FREE — 64 page 2 color 9" x 6" *illustrated* catalog. Free flight and U-Control planes, engines (gas, glo, jet, diesel, CO2), accessories and wood. Also rubber, rubber powered planes, solids, boats, cars. Over 3000 items. PLUS articles on building, doping, flying, engines, etc., etc.

FREE — Free jumbo catalog of thousands of hobby items: Plans, boat, car, engines, accessories, solids, gas, rubber, etc., etc.

WE SELL DEALERS TOO!

Did you know that Mod-Ad Agency, Inc., the wholesale affiliate of America's Hobby Center, Inc., is one of the fastest growing jobbers in the business?

We know your problems because we have your problems!

Write for sample catalog, ready for your imprint and our famous 9-point program . . . the reasons why more dealers are doing business with us, including our 60-Day return privilege, etc. Special Deal if you are going into business. We ship anywhere in the world.

Write to MOD-AD AGENCY, Inc.
136 WEST 22nd STREET, NEW YORK 11, N. Y.
1067 BROADWAY, BROOKLYN 21, N. Y.

CANADIANS! You save plenty by ordering from us. Send remittance in full.

AMERICA'S HOBBY CENTER, Inc. - New York City, Brooklyn, Chicago, San Francisco, Denver, New Orleans

Complete FLYING OUTFITS

WORTH TWICE OUR COMBINATION PRICE!

WE WILL SUPPLY
A complete flying outfit with your own choice of any advertised engine or plane—and save you money. Just order from us or write for price.
IF IT'S ADVERTISED, WE HAVE IT

IT ISN'T OFTEN that you get the chance to buy, at less than half price, a U-Control Plane, Engine and All-Accessory Outfit with your own choice of a well known **FACTORY ASSEMBLED** ignition or glo engine. Everything carries the famous America's Hobby Center as well as the manufacturer's guarantee.

Even if you are a beginner, you won't have trouble building and flying any of these flying outfits, full-size plans of any easy to-build and fly plane, every accessory you will need, complete instructions, etc., etc. If you are an old-timer at building and flying model planes, we don't have to tell you what these bargain outfits are really worth.

Thousands of these complete units have already been sold. They have met with enthusiastic reception because they represent a value unheard of before in the modeling field. The price is so low that we cannot sell to dealers. You really save from $10 to $12 by buying the complete, packaged unit—everything is engineered by experts for a perfect flying combination.

YOUR OWN CHOICE OF ENGINE, PLANE, PLUS ALL ACCESSORIES, INCLUDING: Correct size finished propeller • 3-way plug wrench • Presto Engine starter with handle and cord • Speed indicator tables • Log Book • Motor cover • Spark or glo plug with gasket • Complete engine instructions • 24 page Gas Engine Theory Manual • Engine adjustment chart • Metal fuel tank and gas line • Metal Battery box • Wilco Quality Coil • 12" Hi-tension lead wire and end clips • 18" insulated ignition wire • Ignition slide switch • Coil holder and mount • Everlast condenser • SAE #70 Oil • 4 ignition wiring lugs • Spark plug gauge set • 2 plane identification tags • 72 insignias • GIANT book on Control-liners, How to build and fly them • Cement • Sandpaper • "Pro" all-metal knife and blade • Metal bellcrank with bolt, nut and washer • Elevator horn • Elevator hinges • Lead-in wire • Push-rod wire • U-Control handle • 100 ft. U-Control stainless steel wire & reel • Membership in Modelcrafters of America • 128 pg 2-color catalog • Postage • Packing • Insurance. Ignition parts not needed with glo-engine not included.

YOU WON'T GET OTHER BARGAINS LIKE THESE!

YOUR CHOICE $8.50

YOUR CHOICE $10.00

YOUR CHOICE $12.50

YOUR CHOICE $13.50

YOUR CHOICE $15.00

PLUS

TRAIL BLAZER Model Plane with carved lower fuselage-half, fully formed aluminum upper half. Balsa sheet wing, no tissue used. Balsa tail surfaces, plywood engine mount. Schematic drawings with step-by-step plans. Rubber wheels, detail paint schemes. 24" wingspan.

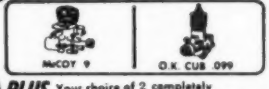
PLUS ALL ACCESSORIES LISTED ABOVE

NEW .099 UNITS

Includes all 3 items

For ease of assembly, for trouble-less operation and for real effortless U-Control flying, these units are the answer to the modeler's dream. Even the beginner will have no trouble in assembling the outfit in one evening and be completely ready to fly the next morning.

1 *You get your choice of*



2 *PLUS* Your choice of 2 completely prefabricated kits

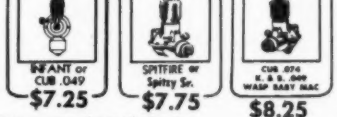
3 *Plus all accessories*

COST ONLY McCoy 9 Glo Outfit $10.95
O K Cub 099 Outfit $ 9.95

AA FLYING OUTFITS

These are the new pint-size glo engines that are so tiny (1 to 1½ ounces) but develop plenty of power for free-flight or U-control flying.

Your own choice



$7.25 $7.75 $8.25

Plus your choice of planes: All planes prefabricated, easy to build and fly

Plus all accessories

BARGAIN OUTFIT

One of the biggest bargains we have ever offered. Over $10.00 of merchandise for only $7.50.

1 *YOUR CHOICE OF*

2 *PLUS* your choice of 4 prefabricated Scientific 22" span u-control planes.

3 *PLUS ALL ACCESSORIES*

COST ONLY $7.50

READY TO FLY

These complete outfits don't give you the fun of building. They are ready-to-operate. All the fun's in the flying. All you'll need in addition is fuel and battery. — Nothing to Build

AEROMITE $9.95 — A really beautiful red plastic ship 17" Wing span with Baby Spitfire engine, prop spinner, tank, etc. already installed. Shock absorbing spring steel landing gear. Tom Walker U-control for precision and stunt flying, plastic control handle, nylon control cord.

AJ FIREBABY $7.50 — Beautifully finished and painted, even fuel-proofed 19" span. Includes new "slow-motion" propeller and engine.

DOUGLAS NAVY SKYRAIDER $9.95 — All plastic model including X & B Torp Jr engine. Landing gear with aluminum rubber-bred wheels, decals, tank, spinner, etc. etc. Includes nuts and bolts for motor assembly. Free U-Control model.

DUSTER $10.95 — True scale bi-plane U-control model of the type used to crop dust, stunt and train many pilots. Includes everything including dusting tube pilot etc. etc. plus Spitzy Senior engine. Beautifully finished in yellow and blue. 15".

F4S $9.95 — Swept wing supersonic fighter. Completely ready to fly 20" u-control model designed for the novice or the champ. Includes Spitzy Senior engine, pilot, canopy, rubber wheels, etc. Beautifully finished in silver.

F6S $11.95 — Super Sonic Fighter. Big swept wing U-control job powered by Royal Spitfire .065 engine. Another Mel Anderson beauty. Includes wing tanks, machine guns, rockets, etc. 28" wingspan.

$5.95 CHOICE OF — Equipped with O.K. .020 and all accessories. All balsa free-flight, chain-powership models. Top notch performers.

SOLDIERS! SAILORS! MARINES! Orders placed through us get special attention. We understand your problems and take special care of your orders. Or send for our SPECIAL SERVICES DATA

$7.95 **COMPLETE RACE CAR COMBINATION OUTFIT**

NEW! Scientific's "HALF-pint" race car, complete with direct drive PLUS O.K.049 engine PLUS all needed accessories. Five minutes after you open the package, you can race this car on any smooth surface, even your own backyard or cellar. Speeds over 40 miles per hour. COMPLETE except for fuel and battery. Car alone $2.95.

How To Order Send remittance in full (we prepay packing and insurance) or send $1 and we ship collect C.O.D. same day for balance. Address your order to us at your nearest branch office.

- Dept. MC-82 156 West 22nd St., New York 11, New York
- Dept. MC-82 1065 Broadway, Brooklyn 21, N. Y.
- Dept. MC-82 55 E. Washington Street, Chicago 2, Illinois
- Dept. MC-82 Rm. 230, 742 Market St., San Francisco 2, California
- Dept. MC-82 Rm. 306, 427 Carondelet St., New Orleans, La.
- Dept. MC-82 Gas & Electric Bldg., Denver 2, Colorado

America's Hobby Center INC

OVER A GENERATION OF FAIR DEALING GUARANTEES YOUR SATISFACTION

By Ron Warring expert builder and writer. 3 new books on Control. "SPEED CONTROL LINE MODELS." "CONTROL LINE FLYING" and "STUNT CONTROL LINE FLYING." Set contains 641 pages over 100 plans of Control Models from Experts all over the world, Speed Charts, Stunt Maneuvers, tank design, wing loadings, fuel formulas. Jets etc. are all covered.

Each, Cloth Bound $3.50
Complete set 3. 9.98

CONTROL LINE

128 pages 8½"x5½", over 100 plans, photos, sketches. A complete study of control flying, starting with beginner's models to complex scale, bomb dropping, retracting gears, etc. All types power, jet, diesel, glow, gas. Models from U.S. and Europe. Beautiful "Ghost" models of clear plastic, etc. Hundreds of ideas to help you build better control models.

Cloth Bound . . . $2.98

DESIGN OF MODEL AIRCRAFT

254 pages 8½"x5½" 18 chapters covering all phases of Model Design. Over 300 photos & drawings of all types of models, dozens of models both scale & contest type for RADIO CONTROL, sea planes shown suitable for radio work etc. Lift & drag charts, low speed figures for Wakefield work, wind tunnel test photos on various sections, torque tests on props, structural problems etc. Largest most complete of $2.98 series.

Cloth Bound . . . $2.98

MODEL BOATS

128 pages 8½"x5½", Over 100 photos and Plans Racing Yachts, Dinghys, Bermuda Sloop, Scale Galleon, Racing Hydroplane, Outboard motor types, Jet power, Clockwork, Gas, Diesel, Steam, Rubber power, all shown. All drawings show how to Build, finish, and operate. Plans for steam engines, prop design, etc. All are in great detail. Simple models to super detailed work for Radio Control of boats.

Cloth Bound . . . $2.98

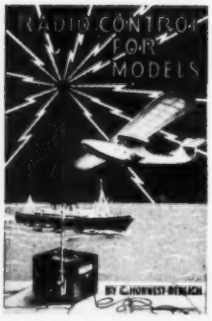
CAR MANUAL

128 pages, 8½" x 5½". Over 150 plans, photos, sketches. Shows simple balsa models to complex powered aluminum, Rubber, Jetex, electric, glow, gas power. Gives plans of M.G. racers, Mercedes Benz, E.R.A. Maserati, Auto Union, etc. How to make centrifugal clutch, wire wheels, gearing, finishes, etc. CAR MANUAL and MOTOR RACING IN MINIATURE are complete set.

Cloth bound . . . $2.98
Complete set . . $5.98

FULL SIZE PLANS GOOD BROTHERS RADIO CONTROLLED RUDDER BUG $2.75

RADIO CONTROL FOR MODELS



SOME OF THE CONTENTS — "Radio Control for Models" written by G. H. Redlich, expert radio development engineer, is written in a manner that all can understand. The Author has successfully piloted a model across the English Channel via radio control, has displayed his aircraft etc. to British Air Force & military experts all over Europe. Good Brothers of U. S., Pepin of France & other experts are all represented in this book. Totals 128 pages, 14 chapters, high quality paper and excellent binding. Hundreds of new, different ideas are shown, measurement of amps, insulators, magnets, shielding etc., all the important things you need to know to build your own set or to keep a purchased set in top operation condition. Escapements with 2 to as many as 12 operations shown, over 175 photos & circuits are given for sets, use of electric motors for control, solenoids, delayed action relays, mechanical movements, beep box used by Good Brothers, boat layout with forward, reverse, stop and half speed controls. Scaled down drawings are given for "Rudder Bug," ½ A "Queen Bee" and "Jige 213" radio controlled powered glider by Pepin of France. Complete trouble shooting information for senders, receivers etc. Here is a book you will use in your workshop and on the field with your models. Quality from cover to cover. Yours for a better knowledge of the many problems of Radio Work. . . .

OVER 10,000 RADIO BOOKS NOW SOLD, PROFIT FROM THE EXPERIENCE OF OTHERS WHO HAVE BEEN EXPERIMENTING FOR YEARS 27 M C BAND NOW LICENSE FREE FOR MODEL WORK.
PRICE ONLY $2.98 MONEY BACK IF NOT SATISFIED. . . .

ADD 10c POSTAGE BOOK ORDERS OR WE ACCEPT C. O. D. — SPECIAL SEND 25c FOR THREE COPIES "AEROMODELLER" (Year Subscription $3.50) Book Lists and Model Cat. all worth $1.27
"AEROMODELLER" contains latest Radio and Wakefield News monthly subscribe now. . . .
GULL MODEL AIRPLANE CO. 10 EAST OVERLEA AVE., DEPT. M-3 . BALTIMORE 6, MARYLAND

Sweeping the Country!

Where Horsepower Counts—It's Wasp!!!

In ½-A competition from Coast to Coast the Wasp is the favorite power plant with contestants. The Winners' Circle finds Wasp powered entries taking home the hardware. In Free Flight, U-Control, and Payload events the Wasp powers more winners than any other engine. For Sport and Pleasure flying, too, the easy starting, dependable, powerful Wasp is the choice of beginners and experts.

Your dealer has probably already suggested Wasp to you if you're in the market for a ½-A engine. The clean lines and lightest-weight-per-horsepower give the Wasp an advantage other engines in the class can't match.

If YOU want a WINNER —Get a WASP

Wasp .049 DISPLACEMENT

Free Flight Combination.....$6.75
U-Control Combination..... 6.50
Back Cover..... .50

ATWOOD MANUFACTURING CO. PICO, CALIF.

MAN at Work

(*Continued from page 2*)

for a future issue. And, shout it over the Public Address system, a new super *Civy Boy*. This is a real clock wrecker that we can't wait to get into print. Paul, for the first time in years, has finished a fleet of ships for the Nats and won't have to test them during the big meet with the boys going ah and oh at every crunch. Complimenting M.A.N. on Aldrich's *Nobler*, Paul recounts a story about the Texas boy. Several Nationals ago, when Aldrich showed up without an airplane, he trailed Gilliam for a while and when one of the far flying *Civy Boys* ended up in a huge cornfield—you know how hot a Kansas cornfield can be? (they still talk about the time Dutch Hess stepped on a woods pussy in a cornfield)—George refused to quit until the plane was found and the search took the rest of the day. Hope this doesn't scare Aldrich from coming to the Nats!

▸ Yesterday we carted *Windy Joe*—with a trike gear—to a Plymouth meet on Long Island. Free flight events were held at old Roosevelt Field and control line at Mitchell Air Force Base, where the Sunday afternoon crowd came to see a parade, the base, and, we think, the models. Anyway, 25,000 spectators stuck around all afternoon so they must have enjoyed the speed and stunt events. A few of us rc'ers put on a demonstration making routine flights and landings on the apron. Wow, how the crowd ate it up. MAN At Work beat out his brains up to 1:30 the night before, readying the new 27.255 Aerotrol, and it worked like a charm throughout ten flights. Spectators seemed fascinated by hand-held transmitters which lend a touch of mystery and drama to the proceedings. If you stick up a folded dipole, why, you ought to be able to do anything but, wtih that insignificant hand held whip, you automatically qualify as a wizard. Leon Shulman was on the p.a. system and there we'd be stooging around in a wide circle over the crowd and you hear old Showman Leon talking about spirals and loops.

▸ Like to tell you about some interesting items that came across the desk this month. Right beside us is standing one of Vic Stanzel's new *Atomic Streak* gliders. It is an exceptionally clean-cut item and the Stanzel brothers should take a bow for an outstanding production effort. The wing is the usual color-printed balsa with built-in camber and dihedral. The stab is balsa. The fuselage is a beautiful red plastic, with cut-out cockpit and pilot's head, nose weight, and tricky profile. The rudder is one piece with the fuse which has a shallow reinforcing ridge along either side. . . . From Sterling, a couple of kits of the *Yak* and *Mustang*. Too much to tell you here but the really thick balsa fuselages probably are the thickest ever to be die-cut to date. Ships are good stunters and the deal is to fly *Yak* against *Mustang* in combat. Being profiles, they are built for it. . . . American Telasco left us one of the Jetex *P-13* delta wing kits. It was designed specifically for the Jetex 50 by Larry Conover, based on Dr. Lippisch designs.

▸ But the really important news from American Telasco is the new Jetex 100—we almost said with afterburner! It features a shroud to add volume to the exhaust. This is a feature of real jet design and the scientific application to a model device is educational and practical, to say the least. We think Jetex made a mistake in calling this the 100. It puts out 1.75 ounces of thrust, a boost of 75 percent, and should be called the Jetex "175." We are sorely tempted—and will yield —to sticking this hot little jet on a pylon or fin above the wing on some battered old free flight or rubber job. Would make a pleasant sport flier to take along on serious sessions. . . . Also in the throes of assembling a *Live Wire*, a squat typically rugged looking DeBolt design, but for rc instead of U-control. Reports say it is a nice flier so we look forward with anticipation to getting airborne a finished machine.

(*Continued on page 55*)

YOU WON'T GET OTHER BARGAINS LIKE THESE!

NO ONE CAN BEAT 5 ACES!

$5.55 FOR THIS COMPLETE OUTFIT

America's Hobby Center, Inc. ALWAYS has a winning hand because it has your interests at heart. When we make an offer, it's always a bargain, not only because it's top-notch merchandise, but because we go all-out to save you money AND give you special value. Here's almost $10.00 of regular advertised merchandise, fully guaranteed, and selected by our experts as a matched unit, for

only $5.55 With O.K. CUB .049 $5.95

THE WHOLE WORKS FOR ONLY $5.55

A.H.C. A DELUXE BARGAIN COMBO

ROYAL SPITFIRE .065
Most Powerful ½A engine

PLUS Your choice of **CURTISS P40F or SPITFIRE**

Monarch Models 20" wingspan 'Spittin' Image' control-line models. Extra deluxe kits. PERFECTLY and COMPLETELY PREFABRICATED. Beautiful models you will be proud to fly — and a cinch to build in only one evening.

PLUS EVERY accessory to build and fly except dope, fuel and battery. INCLUDED are matched propeller, tank and fuel line, glo plug, connecting clip and wire, wrench, motor mounts, mounting bolts and nuts, flying wire and reel, control handle, motor cover, identification tags, Presto engine starter, all hardware, bellcrank, elevator horn, hinges, sandpaper, cement, rubber wheels, decals, lead-out and pushrod wire, formed landing gear engine instructions, full-size plane plans and instructions, log book, speed indicator, PLUS Glo Engine Handbook, giant book on Control-liners, PLUS membership in Modelcrafters of American, postage, packing, insurance and 128 page 2-color hobby catalog.

BEAT THIS PRICE IF YOU CAN — A $15.00 VALUE — **FOR ONLY $9.95**

ENGINE TRADE-IN SERVICE

While America's Hobby Center, Inc. does not sell used engines, we have a constant request from schools, clubs and overseas soldiers for second-hand engines for experimental work.

If you have a used engine, we will be glad to accept it in trade for any merchandise (motors, planes, boats, accessories, etc.) except Flying Outfits and a few other exceptions, listed in our ads or catalog. Just send in your engine (with your name and address) as the following schedule indicates:

Your old Engine PLUS

$3.75 = $5.00	Credits towards your Purchase
7.50 = 10.00	
11.25 = 15.00	
15.00 = 20.00	
22.50 = 30.00	

You will receive the usual, free premiums, subscriptions, etc.

EVERYTHING in this magazine can be ordered from A.H.C.

N. Y. CITY MODELERS
TWO STORES TO SERVE YOU!
Largest stock in the country at either of our two stores
156 W. 22nd St., New York City
1065 Broadway, Brooklyn, N. Y.
Experts on hand to help you with your problems
Complete stock including engine parts and service at both stores

America's Hobby Center INC.

Please RUSH me the following: DEPT. MC-82
PLEASE PRINT

156 West 22nd St., New York 11, New York
1065 Broadway, Brooklyn 21, N. Y.
55 E. Washington Street, Chicago 2, Illinois
Rm. 230, 742 Market St., San Francisco 2, California
Rm. 306, 427 Carondelet St., New Orleans, La.
Gas & Electric Bldg., Denver 2, Colorado

Name .....

Street Address ..... Amount Enclosed .....

City ..... Zone ..... State .....

Page	Quantity	Name & Description of Items	Cost Each	Total
➡	ONE ONE ONE	ENGINE TROUBLE TRACER & AID MANUAL SPEED INDICATOR CHARTS FLIGHT LOG BOOK	FREE with each order	
			Total	

24 HOUR SERVICE AT ALL TIMES

- → 1. One year subscription to Model Airplane News, Air Trails and Flying Models or its equivalent value to our regular customers.
- → 2. 14-Day Money Back guarantee on unused purchases.
- → 3. Unused purchases exchangeable within 14 days.
- → 4. No postage or packing charges — we insure safe delivery anywhere in the world.
- → 5. 24 Hour service. Mail addresses in Chicago, Denver, New Orleans and San Francisco, which will airmail your orders to our N. Y. office for prompt shipment.
- → 6. Most complete model stock in America—gas, rubber, solid, etc., etc. If it's advertised, we can usually supply it.
- → 7. Competent understanding of your modeling problems.
- → 8. No "minimum" orders. Any order is welcome.
- → 9. FREE with gas motors, 50 ITEMS WORTH OVER $7.00 AT NO EXTRA COST.
- → 10. FREE rubber wheels, knife, etc., etc., with every gas plane selling for over $1.50. 12 ITEMS WORTH $3.50 AT NO EXTRA COST.
- → 11. FREE membership in "Modelcrafters of America," the club that keeps you up to date on gas modeling and SAVES YOU MONEY ON YOUR PURCHASES.
- → 12. FREE illustrated giant 2-color 128 page catalog with every order.

AHC does!!

HOW TO ORDER

Send remittance in full (we prepay packing and insure) or send $1 and we ship collect C.O.D. same day for balance. Address your order to us at your nearest branch office.

Only 25¢ each

Handy WORKBENCH EDITIONS of these famous Winston books (regularly $1.00 each) for only 25 cents each:

GLO ENGINE HANDBOOK. Tells all about the theory and operation of glo engines ☐

CONTROL LINERS. How to build and fly them. Covers the subject from A to Z ☐

GAS MODEL PLANE CONSTRUCTION. The answers to every problem you will ever meet ☐

The Two BIGGEST Names in Model Airplanes!

Monogram *flying models* **85c**

SPEEDEE BILT

Prefabricated Fuselage • Patented Monofoil Wings • Plastic Parts

Typical Speedee-Bilt Parts of Gleaming Molded Plastic

Easy to Build and Fly in One Evening

Big variety too. World war I and II, high wing, low wing, monoplanes, biplanes, fighters, jets, trainers, seaplane. Thousands of fellows are building them all and are having a barrel of fun. Finished balsa parts. Molded plastics parts, including 2, 3 and 4-bladed props. Genuine decals in authentic colors.

Most Popular Flying Models of All Time

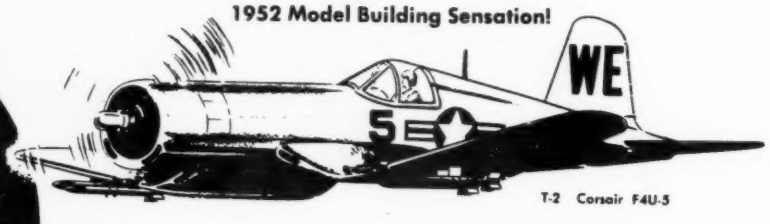
1952 Model Building Sensation!

Monogram SUPERKITS

Balsa Solid Scale Model Airplanes

Plastic Parts

89c



T-2 Corsair F4U-5

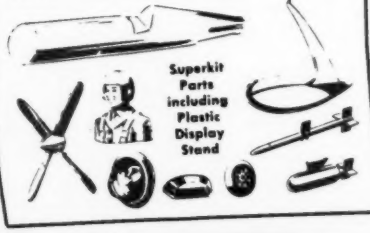
T-1 Mustang F-51

T-3 Thunderjet F-84

Easy to Assemble in Only One Hour

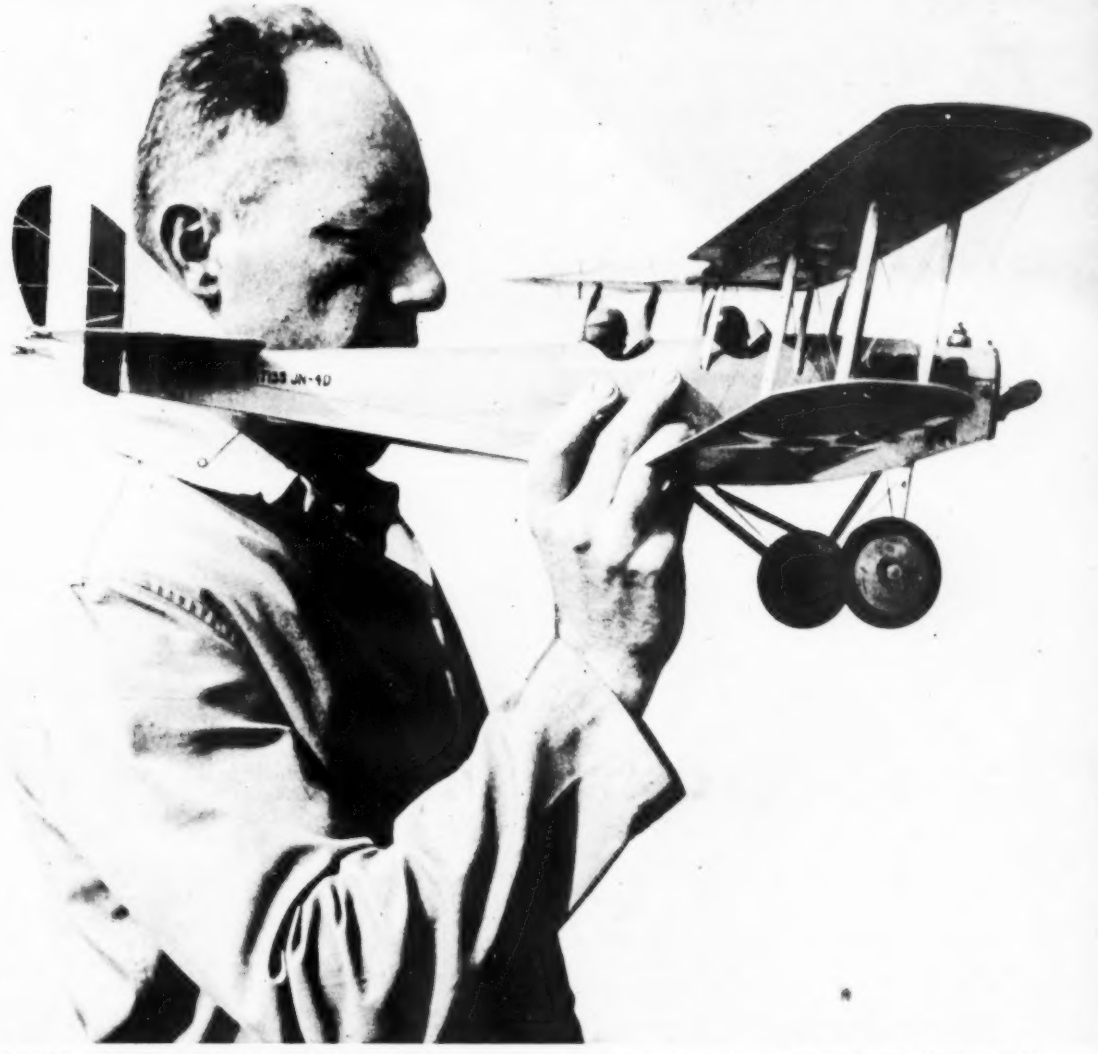
You can build the most beautiful, authentic and detailed exhibition models you ever saw with Monogram's Superkits. Even with all the detail, building is so easy you can't do it wrong. Sm-o-o-o-th finished balsa, plastic parts and genuine authentic color decals.

Super Detailed • Scale Finished 16 to 23 Plastic Parts in Each Kit



Get Monogram Models from your dealer. If none in your neighborhood, order from address below. Remit 25c extra for packing and shipment.

Monogram Models, Inc. 3421 WEST 48TH PLACE, CHICAGO 32 | MODEL AIRPLANES • SHIPS JET POWER RACERS



They used to say of the *Jenny* that if you released a bird between wings and it got away, you had a loose wire. Our *Jenny* has all the wires—tight.

THE JENNY

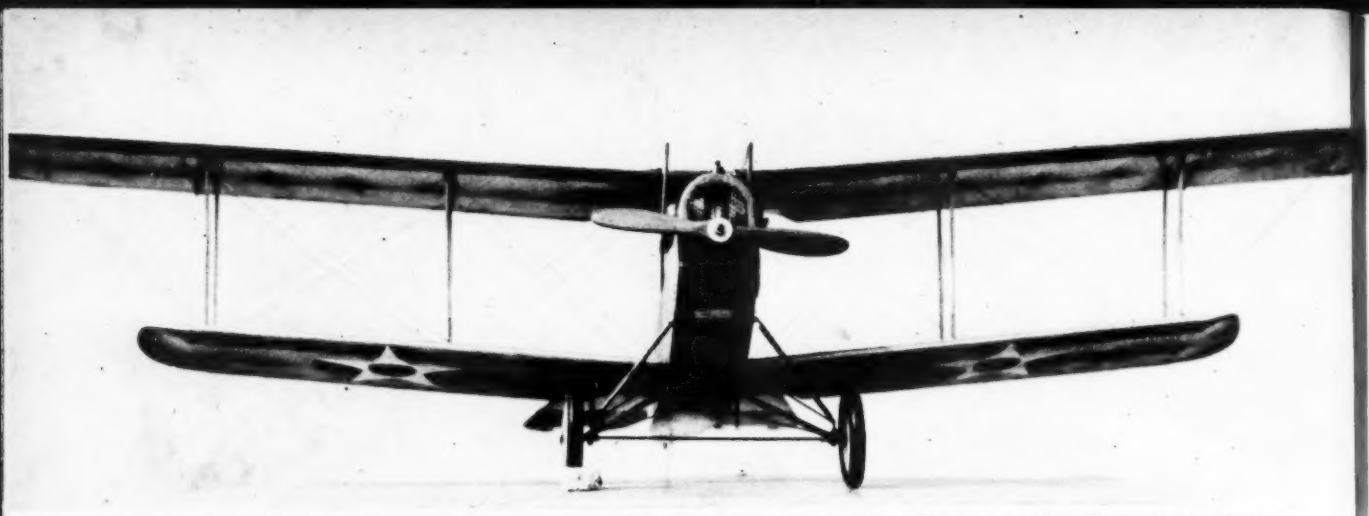
▼

by HERBERT KELLEY

Who can forget the romantic Curtiss JN-4D, the World War I trainer that became the most sworn at and revered plane in history? This fine flying replica is for the .045's and .049's.

▶ This model was designed for authentic appearance and reliable flying. Although scale sizes could be used, wing and landing gear positions were changed to improve flight and landing characteristics.

Wet the lower longeron before bending to shape on the plan; this reduces stresses in the finished fuselage. The sides are assembled on the top view, starting from the nose and working aft. Check frequently for squareness. Cowling formers are next; those for the turtleback are notched. Cowling is cut from 1/32 sheet, wet and taped to a shaped block. When dry, the preformed cowl is cemented to the fuselage. This cowl extends from the firewall to the turtleback. Sand lightly and give a coat of cut dope to seal and stiffen it. The cockpits are traced from the plan with carbon paper and cut out with a pointed blade. Sand raw edges smooth and dope to seal them. Install turtleback formers of 1/16 x 1/16 balsa as indicated on plan; cut the louvre slots 3/32 wide, and bevel the forward edge ready to install the ears or flaps. These were considered necessary to help the airflow from the engine section. The firewall for the *.045 Spitfire* was made from 1/4 x 1/2 basswood or white pine. The modeler will have to adopt this area to his own engine, but be careful to place the motor in the same relation to the reference centers. Check and recement all the joints. Lightly sand



Cow's-eye view of the great post-war barnstormer as it glided, strumming wires, into a pasture. The prop standing still? Dead stick, that's all.

the whole fuselage and give one coat of cut dope to seal the structure.

The landing gear is bent to shape from one length of wire starting from the center of the front and working carefully around the whole gear. It was found best not to bend the axle guides down until the gear was installed on the fuselage. Groove the cross members of the fuselage before binding and cementing the landing gear in place. Be careful to true up gear so that fuselage sets square on a flat surface and the axle is square with the reference line of the fuselage. The tailskid is bent to shape from wire, then bound and cemented to the fuselage. Shape 1/8 x 1/4 balsa to a streamline shape, groove the front edge, and cement to the landing gear wire. Use plenty of cement in thin coats to make sure of a good bond. Make the lower wing tabs of 1/8 sheet balsa and cement in the place in the bottom of the fuselage. A 1/8 sq. piece of balsa is put under the front edge to give the proper angle of incidence to the lower wing. Next, 1/8 x 1/8 hard balsa pieces are cemented in the fuselage as shown on the plan to provide an anchor for the center section strut wires. These are gusseted and cross braced as shown. Bend center section wires to shape as shown, cut small holes in the cowl and bind and cement in place. Be careful to line the struts and square with fuselage before cementing.

Streamline is installed in the same way as for the landing gear. Diagonal bracing can be used in the fuselage for added strength but has not proved to be necessary for other than scale. Now the fuselage can be covered with *Silkspan*. Wet lightly with water to draw fabric taut and when dry, give one coat of cut dope.

The control tabs of 1/8" sheet are installed with a hinge of copper sheet, cemented into slots cut in the wood. When dry, sand the wood flush to the surrounding surfaces and give a sealer coat of cut dope. The tail surfaces are cemented to the fuselage. Be sure this assembly lines up. Cut out all the ribs from 1/16 sheet stock, notching for the spars. Cut the rib template from a piece of aluminum. All the ribs for one panel were pinned together and sanded as a unit. Cut leading, trailing edges to length and notch for ribs. Cut an oval hole in every other rib between the spar notches to allow the drag bracing to pass through. The bottom spars and the trailing edge are pinned in place on the plan and the ribs cemented in place. The upper spars and the leading edge are next. The drag bracing of 1/16 x 1/16 is cemented into the structure diagonally from a bottom spar to a top spar. Make and install the formed trailing edge (cut outs above the pilots' seats), and then wingtips. Remove panel from the plan and recement all the joints; place on a flat surface to dry. Make four panels, two left upper and lower, and two right upper and lower.

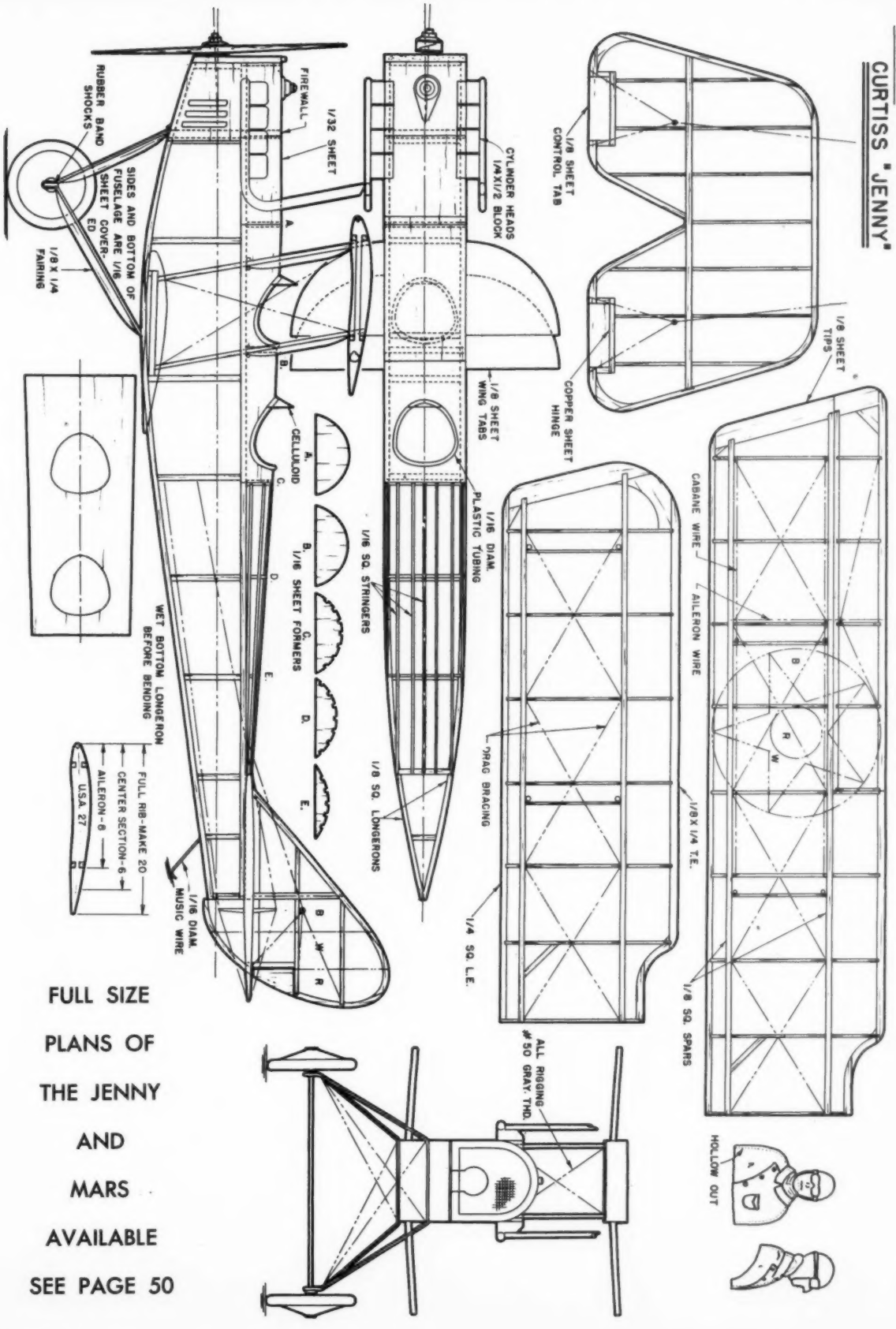
When the frames are thoroughly dry, sand all over. Cut a slot in the first two root ribs of each panel for the tab supports. Each panel is then fitted to its respective tab until it slides on and off easily. Be sure that the bottom of the airfoil is parallel to the sides of the slot. This is to insure that the angle of incidence is correct. Now cover the bottom of the top wings, and the top of the bottom wings. Do not shrink the *Silkspan* yet. Cut the struts to length from 1/16" hardwood doweling and put the wings on support tabs. Block fuselage up into flying position so the reference center is level, then secure in place. Block upper wings in proper position to give 1-1/2" of dihedral at the tip; secure in place. Block up lower wings so they are parallel to upper wings and secure in place. Now check the entire assembly to make sure it is square and lined up correctly in all respects. This is important. The wing struts are now put into place and secured by binding with thread and cement. Small wedge shaped blocks are used where necessary to make a good fit with the spars because the struts are staggered. When this was dry compression members, made from 1/16 sheet, were cemented alongside the struts between the spars to further strengthen the assembly. Cement 1/16 x 1/16 alongside the support tabs to insure a good fit in between the spars. Cement in the 1/16 in dowel cabane struts on the upper wings. Take plane out of jig and cover the rest of the panels. Place back in jig and spray water on the panels to shrink the fabric. When dry, apply a sealer coat of cut dope. The plane can now be removed and painted. *(Continued on page 37)*

Wings on each side are assembled as a set and are mounted by tongue-and-box method to knock off easily, undamaged, in a crack-up.

Acres of wing area make the author's *Jenny* an easy model to adjust and fly. Old style star insignia, Army colors, make a gay ship.

HERB KELLY'S

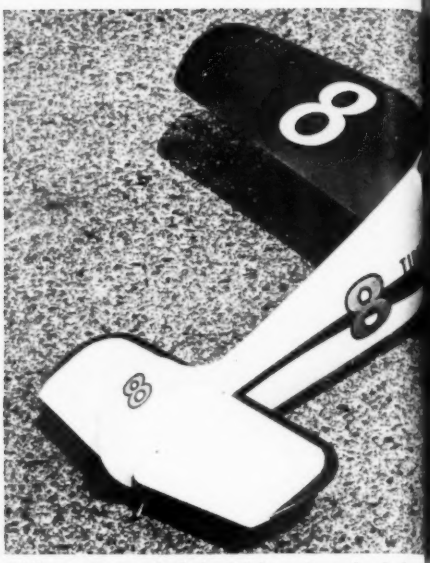
CURTISS "JENNY"



FULL SIZE PLANS OF THE JENNY AND MARS AVAILABLE

SEE PAGE 50

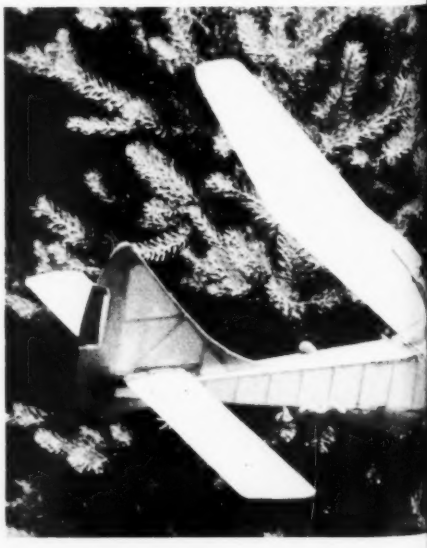
Wild launch of Cleveland *Luscombe* rc model by unidentified modeler. Below—At secret California test session of new U-control event, MAN reporter spotted this large scale job on a take-off.



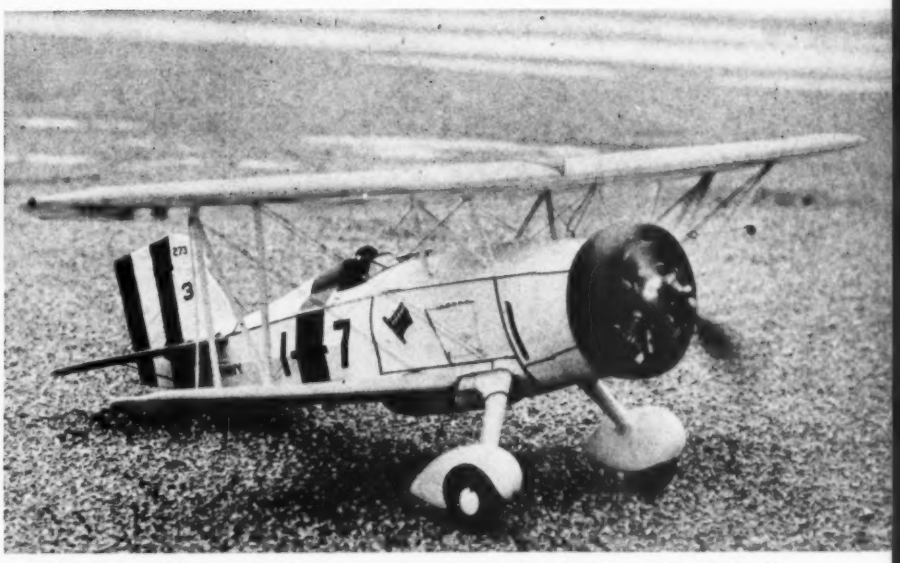
Tiddle, team racer built by Leighton Conrad, of the FAST Club. This cream and maroon model has solid

air ways

For more than twenty years MAN editors have been describing the ships in Air Ways. The only word left is atomic — no!



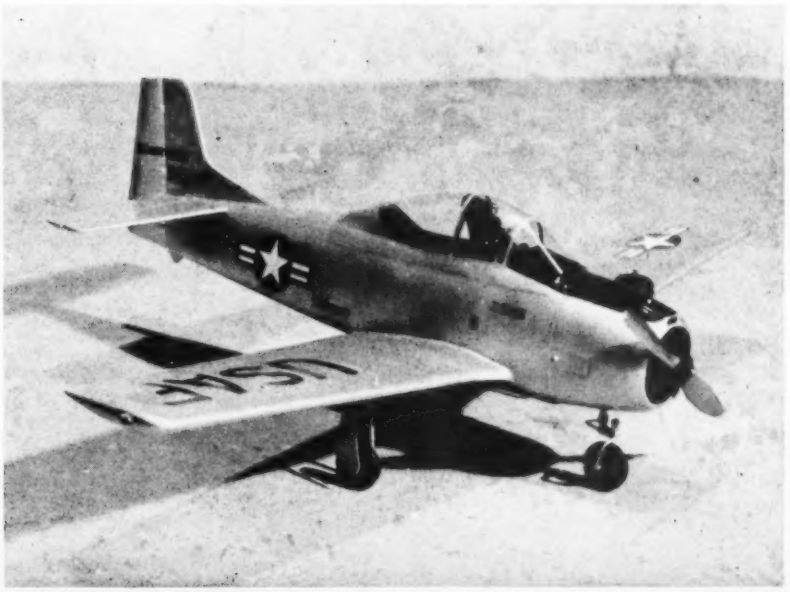
balsa wings and tail surfaces. Fuselage is planked over a backbone of magnesium and balsa. McCoy .29.



First prize winner ($10) for workmanship goes to Neal Hess, Salt Lake City, for 50 inch, 5-1/4 pound Curtiss *F11C-3 Hawk*. Morton M-5 engine has electrically controlled throttle; all trimmings.

Trike geared variation of Drake, P. Hartzell, Allentown, Pa. Below—Cub .074 on Jasco sailplane, by Robert Bixler, Kidron, Ohio.

Second prize winner (subscription), C Svensson, Angelholm, Sweden, solid of their pusher fighter. Below—Third prize, T-28, L. Johansson, W. Hempstead, N. Y.



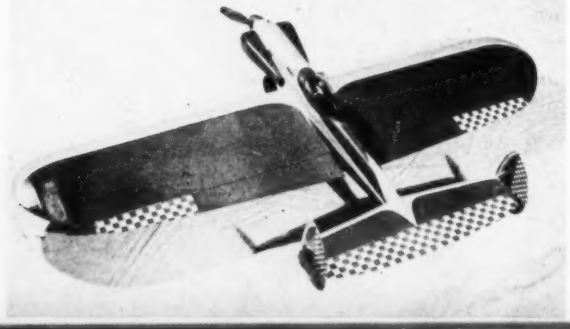
MARS

Giving the release signal to his helper, Bob gets set for the take-off. He reports that the trike gear cuts down on those point-losing bounce landings.

by BOB PALMER

Combining realism and appearance with top stuntability, this job may be the finest of its kind to be published in any magazine.

Side-mounted Fox fits neatly in "applecheek" cowl. The wing is a 15% thick section with carefully and correctly calculated flap movement.



Stunt flying has greatly changed in the last three years; more time and more realistic design is needed to get those extra points. The *Mars* is qualified to do the A.M.A. stunt pattern and is designed also, to obtain full appearance points. Span is 49", wing area 404 sq. in.

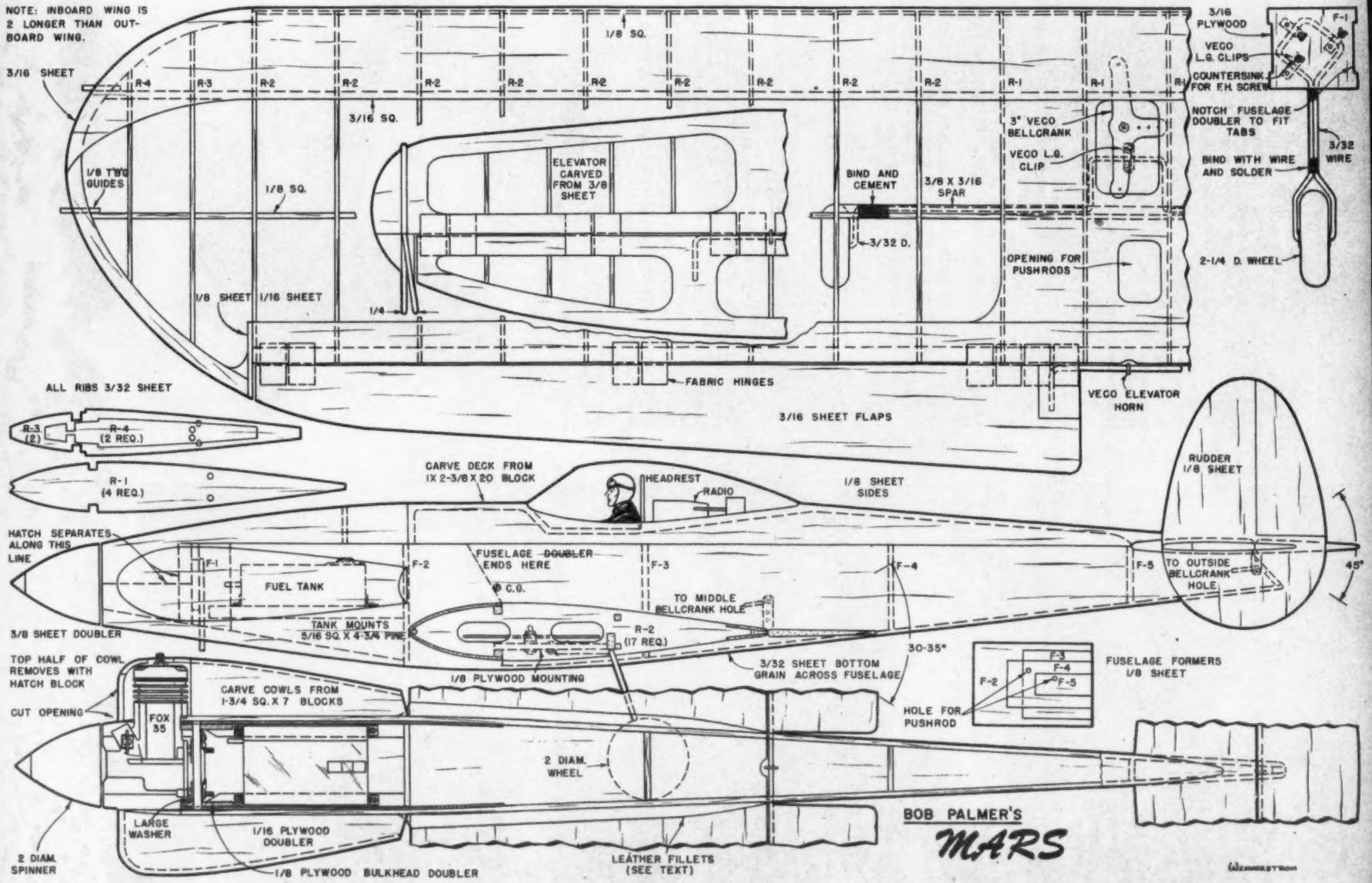
A.M.A. rules call for a possible 80 points for appearance and give points for certain parts of the model. Taking into consideration all of these things, I designed the *Mars*. I decided upon a tricycle gear because, with this gear, take-offs can be held a little longer, looking more realistic, and giving you the fullest possible points; also, for good landings. It's difficult to get wheels in perfect place on a conventional landing gear to make good landings without that hopping effect, and with one hop, you'll get only 10 points.

In designing the wing, I have selected a 15 per cent section. Having built wings with different percentage sections, I decided the 15 per cent is ideal. You will notice in the plans the size of wood in this wing. It's light, but very strong; a little more trouble, but it's worth it. Weight will have a lot to do with performance. Keep this in mind in your purchases and building. The wing has a little sweep in the tips for appearance and less drag. Using a tricycle gear I could use a double-fin tail. This gives good stability and good action of the elevators.

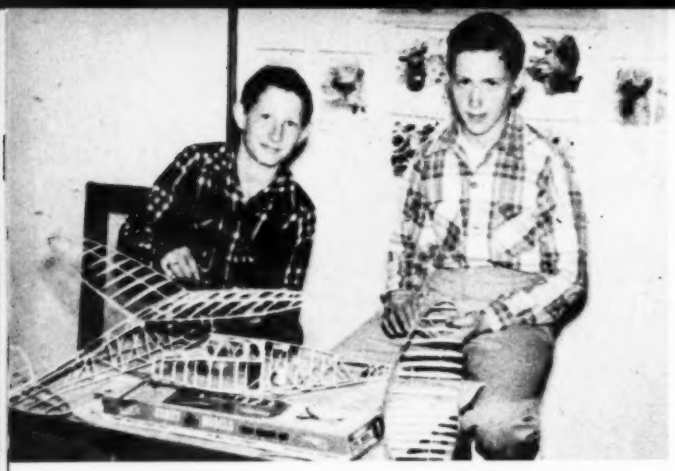
The cowl is one of the features. By simply removing the one screw, the entire engine and tank is exposed, giving access to removal of either. This, my second experience with side mounting and first completely cowled engine, turned out better than expected. After I hit upon the idea of removing part of the cowl with the hatch block, construction became simple.

Having had quite a bit of experience in tricycle gears before, design was no problem and, in the initial tests, taxiing with full power on all the way around the circle, was not difficult and without swinging in on take-off. Landing required a different approach than with two-wheelers but, after a few practice landings, *B-25* landings were a cinch.

This model is equipped with flaps. A lot of trouble has been experienced by persons (*Continued on page* 47)

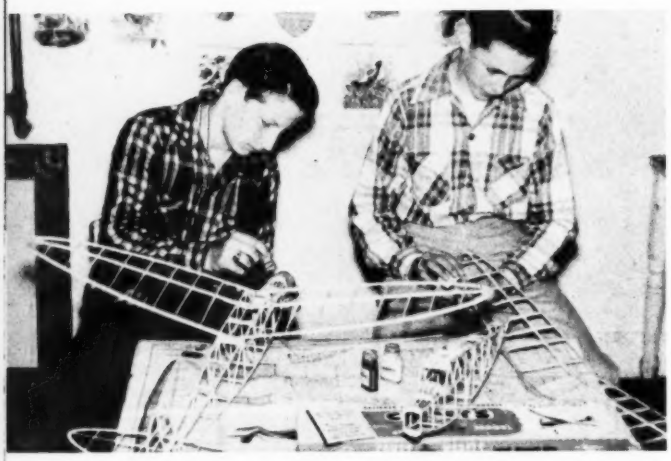


FULL SIZE PLANS FOR THE JENNY AND MARS AVAILABLE. SEE PAGE 50.

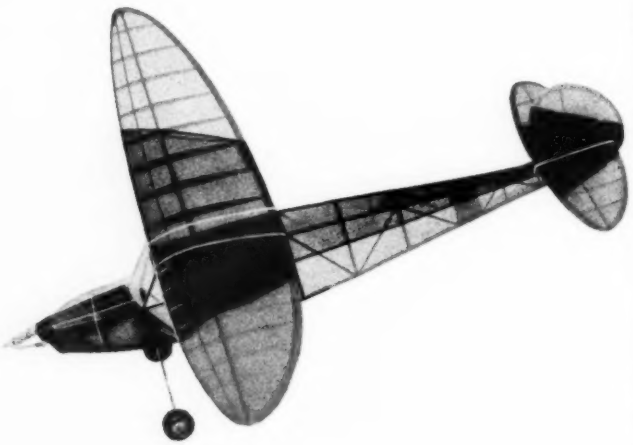


We Test The Clipper Jr.

Tommy and Lee, who had built only plastic and solid models, helped test pilot Wood by constructing two of the *Clippers*. It was fun.



A few minutes, practicing on scrap balsa, boys quickly became proficient in use of knife and a razor blade. Too much hurry-up.



This is author's test job, sporting a folding type propeller. Right—A close-up showing the fine points of construction. While kids' jobs would take-off and fly 100 feet or so, Chuck quickly lost his *Clipper* on an out-of-sight.

by CHUCK WOOD

The Comet *Clipper* first appeared in kit form as a gas model in the late 1930's, and it is still flown throughout the world both as a gas- and rubber-powered model. Designed by Carl Goldberg (of *Zipper* and *Sailplane* fame) it is one of the most successful of all free flight models, combining realism and contest performance.

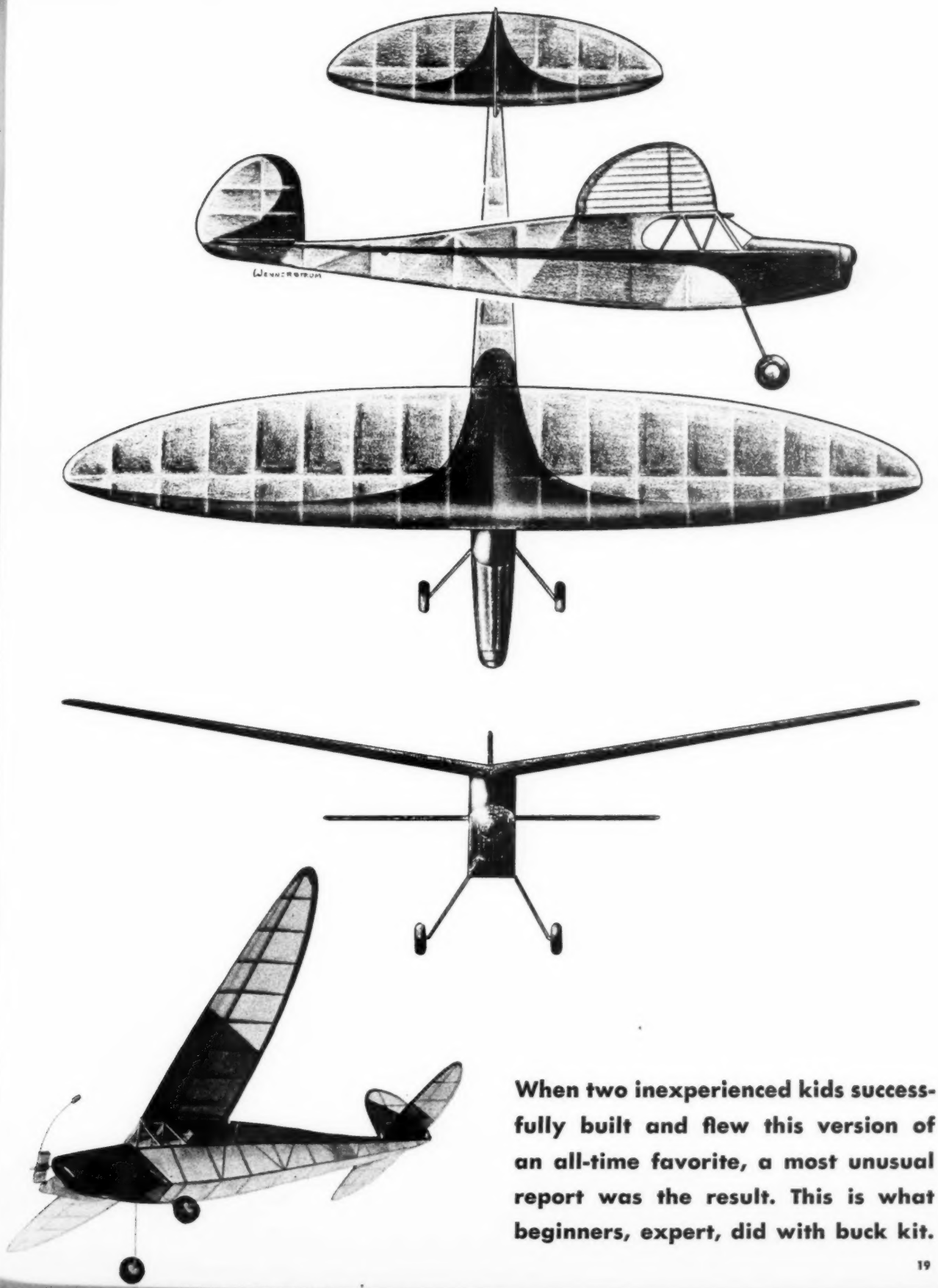
The present *Clipper* is the rubber-powered version of 36" span. It is lightly built but very rugged. Construction is the familiar box fuselage, flat tail surfaces, and single spar wing. The model is manufactured by Comet Model Hobbycraft, Chicago, Illinois, noted for its free flight contest designs and rubber-powered models.

When the writer decided to build the *Clipper* for the "We Test" series it was decided to ask two of the neighborhood boys (aged 13) to join in building the *Clipper*. The reason for this was to determine whether or not a youngster, whose building experience was limited to plastic and solid models, could successfully construct a fully built up model. Help was given to the youngsters in the form of advice and instruction, but no actual building was done for them.

Helping the two boys, Tommy and Lee, turned into one of the most interesting experiences the writer has had in building models. Old difficulties in construction long since forgotten were brought to mind while working with the two boys. Before starting to cut out the *Clipper's* printed parts, both boys were given pieces of scrap wood to practice on in making cross grain cuts and curved sections. The pieces were far from perfect, of course. Skill with a razor blade or knife is learned through many hours of practice, but it was surprising just how proficient in cutting printed parts the boys became with just a few minutes of instruction and practice.

Showing the boys how to cut formers and ribs so that the cut was on the outside of the printed line was done over and over, as was the cutting of the uprights and cross-braces for the fuselage of the *Clipper*. Some braces had to be made over so that a good clean fit was assured, but generally the boys' workmanship was good, and they soon would remake a poor fitting part without being reminded to do so.

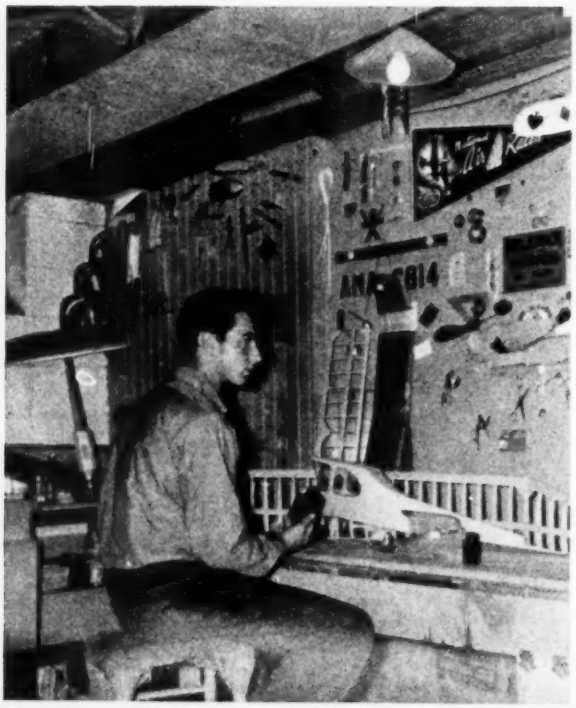
Probably the most difficult problem to overcome was the tendency to hurry through the steps of construction. For example when the stabilizer was being constructed, both boys tended to hurry in (*Continued on page* 44)



When two inexperienced kids successfully built and flew this version of an all-time favorite, a most unusual report was the result. This is what beginners, expert, did with buck kit.

Tips From A Champ

- With the 1952 Nationals in
- the news, the present National
- champion tells a story of
- what it takes to win sufficient
- places to be man of year.



The author, and 1951 Champion, at work on a new payload. Paul suggests knowing the proved designs, patterning ships accordingly.

by PAUL SIMON

When I was eight years old, my models only slightly resembled the ten cent kits from which they were made. But some time later, when I saw older fellows taking beautiful models out to fly, I became more and more interested in building better airplanes. I began to realize the urge for competition—the desire to build and fly my ships against those of others. Once I did enter into sanctioned competition (actually only five years ago), I knew that I had the "bug" for good. I began to eagerly acquire the many "tricks of the trade" that eventually paid off to the tune of victory—modeling's most coveted title, "National Champ."

If you think you would like to compete in model airplane events, here are a few helpful hints to keep in mind. It is a good rule, if you haven't had much experience along this line, to seek advice from some one who has, as to what types of models to build. Often a proprietor of a model shop can suggest some time proven kits which have had good results in the past. Many model magazines have contest winning plans drawn up in them. From season to season, you will learn to know the best performers, and, if you are wise, will pattern your planes after these proven champions. Observance, here, is the keynote. Observe not only the flight habits of your own type of ship, but also that of others. Be on the lookout to make changes and to correct defects in your models. "Try and try again," as the old saying tells, "and you will succeed." Often a poor flying ship may possess one good feature that, when incorporated into another ship, makes the latter really outstanding. Only trial and error, as far as improvements are concerned, will tell the tale.

In constructing your models, always be particular about using nothing but the best materials. I have found, for instance, that by purchasing good wood whenever I see any in model shops around town, I always have a plentiful supply on hand just when I need it. The same holds true for tissue, dope, etc. Consistently buy top quality wood for the specific purpose you have in mind, i.e., quarter-grained wood for ribs and, for spars, firm straight-grained wood. Small items that at first seem insignificant can actually make your model much stronger and better able to withstand the strain of flight and shock of landing.

When you have decided definitely what type of planes you are going to build, having purchased the necessary materials and secured the desired plans, you are ready to begin building. Many modelers have found that, by building two or more replicas of the ship at once, they actually get more out of their building time. The advantage in this case is, of course, that since you have the plans and materials out on the board, you lose no time in switching around. Simply cut a double amount of ribs and work on the two bodies, wings, etc., together. While the cement is drying on these parts, you can be busy carving and sanding the props. Never waste any of the time you have for building.

Having completed the needed wing and fuselage sections, carefully go over and re-cement every joint, giving three or four coats on all splices and dihedral breaks. After this is done, smooth the entire framework with fine sandpaper, applying then a coat of dope on the wing and stab to prevent moisture from warping them later. Then you are ready to cover the model. This step requires great care so that no irregularities occur on the surfaces. Finish off the job with several coats of dope, as many as six to eight on gas models, and from three to four on the wings and stab of rubber jobs, to two and three on the body.

Along with the majority of model builders today, I have found a fuse dethermalizer the best. It can be used well with opening-hatch and parachute types, but is best on the "pop-up-stab" type of dethermalizer.

Remember always, when you have all your planes built and ready for the contest, that you must have them properly adjusted. This must be done long before the event. You can't expect to adjust them just before flying time, as this task usually requires two or three days. A dead calm day is necessary for the first test. Test your models cautiously in order that no (*Continued on page 40*)

R. C. Review Today

by ED LORENZ

This birdseye view of radio control, prepared especially for modelers, not radio experts, is a valuable assist for getting started in this new field without trouble.

Editor's Note:

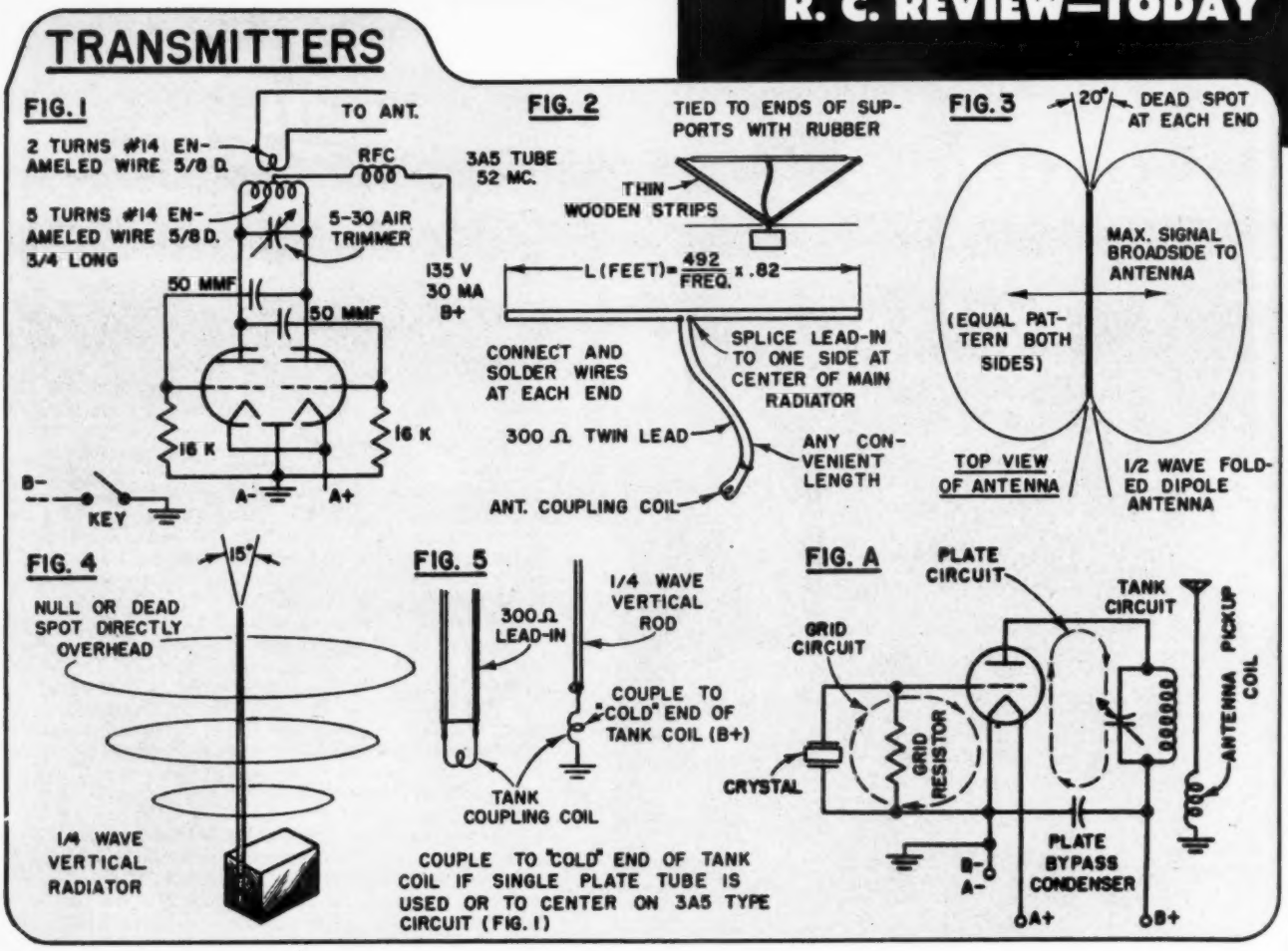
In view of the present boom in radio control, resulting from license-free frequencies, M.A.N. has invited an outstanding expert in radio modeling to outline the subject in the following series of articles. This issue contains Transmitters, Receivers, Actuators, and a Glossary. The September issue will include Batteries, Relays, the Airplane, and Tips. This special service is in addition to the regular model projects. Thanks are due to Vernon C. MacNabb, Berkeley, and Control Research for their help.

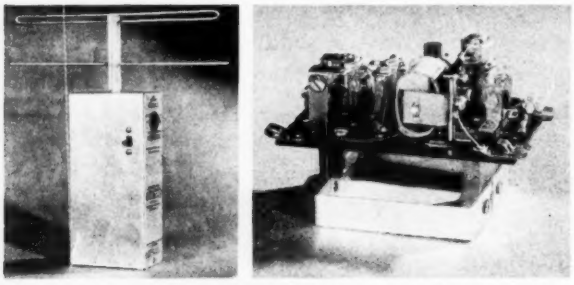
The Federal Communications Commission has allotted the frequency of 27.255 megacycles, in addition to 465 megacycles, for model use without the need of a ham license. The equipment on this new frequency may be built by the modeler as long as crystal control is used and FCC requirements are closely adhered to. Ready-built units and kits (Aerotrol) already are available. More will be available in the future months. The first free band for control purposes was the Citizens' Radio Service band of 460-470mc. The Vernon C. MacNabb Company of Indianapolis was the only company to produce equipment for this band.

Now that license-free operation is available, those of you having 52mc sets are wondering what can be done to convert to the new frequency. Transmitters will have to be reworked radically to comply with FCC rules. The receivers can be changed quite easily. The XFG-1 and RK-61 tubes will function with greater efficiency at 27mc than at 52mc, so no trouble should be encountered there.

In order to know the basic facts about radio control, we must know what operating units are used and how they work. A radio control set consists of a transmitter, a receiver or controls. Although there may be many variations of the individual units as outlined, we shall give a brief summary of the basic functions of each. (The glossary of terms accompanying this section will help in following this discussion.)

The transmitter (*Continued on page* 36)





First license-free radio, MacNabb X-mitter, left; and receiver, right.

TRANSMITTERS

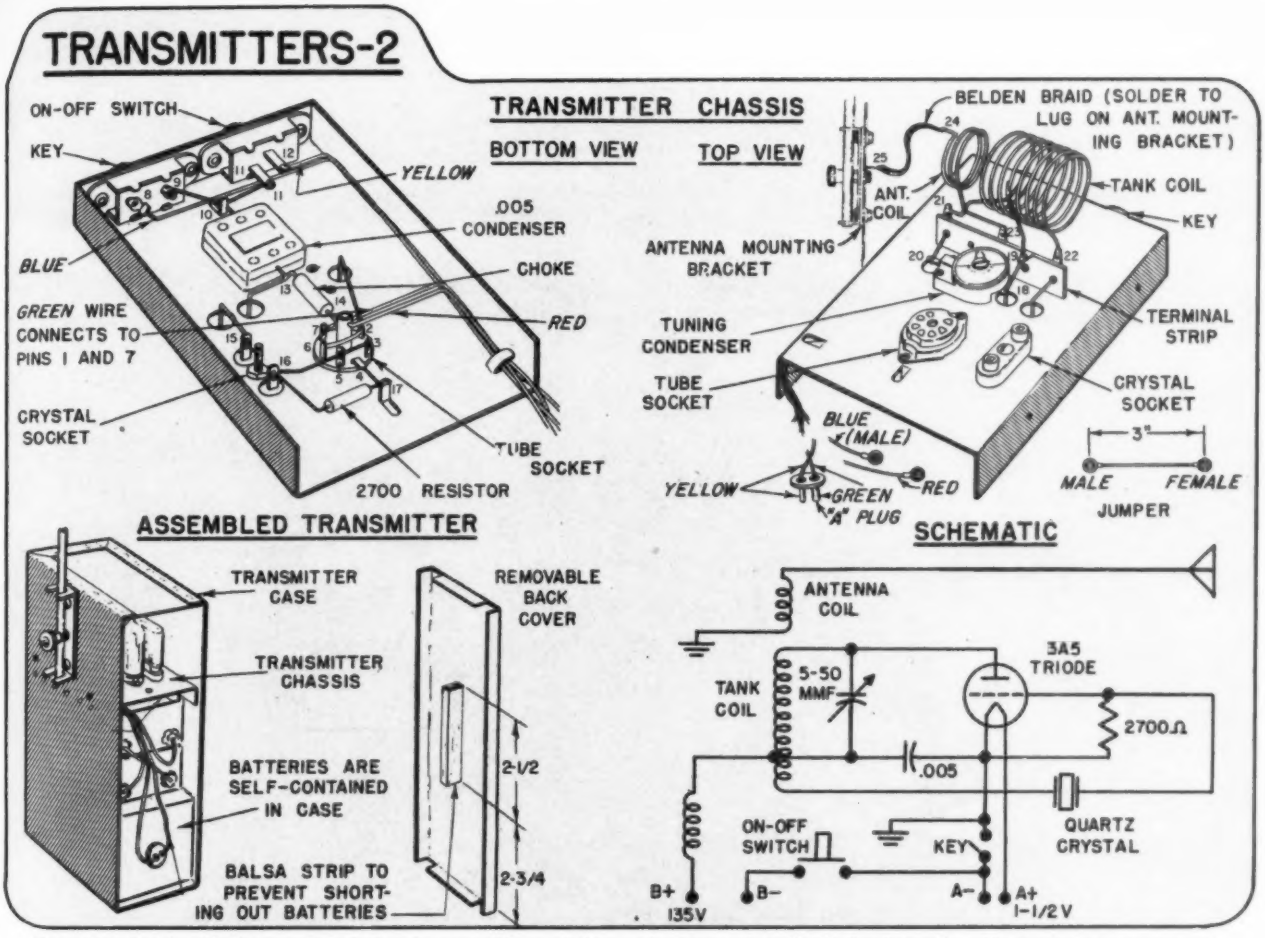
This crystal-clear, on-the-beam discussion of antennas, folded dipole and vertical, goes a long way to dissipate the mysteries of transmitter operation. There's a cargo job load of valuable tips for the beginner, explanation of wave patterns, tubes, tuning, and a rundown on a crystal control X-mitter.

In the early days of radio control, the transmitter was usually a multi-tube unit with a power output of from five to ten watts. Present day transmitters are practically all one-tube units with a power output of from one to two watts. The sensitivity of the Hivac and RK-61 tubes for receiver use made this low power for transmitters possible. Figure 1 shows the circuit for the type of transmitter most commonly used for operation on 52mc (not license-free).

Practically every large contest held during the past five years has been won with a transmitter having a power output of less than two watts, which is easily furnished by battery supply. If the transmitter is putting out about 1½ watts, the antenna efficient, and the receiver properly tuned, this is sufficient for reliable operation, Remember that the average five foot model is practically out of sight at a distance on one-half mile. In order to double the distance covered by a given power output, the power must be squared. For example, if three watts are used to operate a receiver at a distance of one-half mile range, nine watts would be needed to obtain the same results at one mile range.

Inasmuch as the modeler will buy either a ready-built transmitter, a kit from a reliable manufacturer, or build one himself from reliable plans, the antenna is the one item which he may change or try to make more portable. Therefore, a word about antennas, how their length is determined, and their characteristics. On practically all transmitters in use on 52mc, the half-wave folded dipole antenna is employed, due to its excellent loading and radiating characteristics. It is, however, a little large for the new 27.255mc frequency. The formula for calculating the length of such an antenna is: Length in feet equals $\frac{492}{\text{fqcy in megs.}}$

TRANSMITTERS-2



Parts of typical hand-held transmitter. Such units vary widely and this one is shown only to familiarize the reader with sample parts arrangement.

times .82. It is constructed of 300 ohm twin lead, as per Figure 2. Most antennas used for model radio control work have dead spots or nulls, areas of little or no signal. The radiation pattern of the folded dipole antenna is shown in Figure 3 and the null effects from the ends are most noticeable at a distance in excess of 500 to 800 feet. When this type antenna is used, it should be turned broadside to the model so that the maximum signal is directed toward the model. A half-wave dipole should be supported by a light wood frame and may be given a shallow "V" shape. This eliminates dead spots near the horizon. Figure 2 shows how the half-wave folded dipole antenna may be constructed to take up less space and be more portable.

If desired, the modeler may use a vertical antenna, which has a concentric radiation pattern. This eliminates all nulls in a horizontal plane, although a dead spot will be had overhead (see Figure 4). When a plane is flying overhead and a vertical antenna is employed, tipping the antenna mount so that the tip is about 30 to 40 degrees away from the plane will overcome this difficulty. The formula for determining the length of a vertical antenna is: Length in feet equals $\frac{246}{\text{fqcy in megacycles}}$ times .98. This is for a quarter-wave vertical "auto" type antenna. If desired, 300 ohm twin lead may be used, the same formula applying except that the first section is multiplied by .82 instead of .98. A strip of wood may be used for support. Figure 5 indicates the accepted method of coupling, or bringing the antenna coil near the end of the tank coil, when using either twin lead wires or a quarter-wave vertical rod.

The basic principle of loading an antenna for maximum efficiency is coupling the antenna coil to the tank circuit so that a maximum transfer of energy is accompuished. Using the correct range meter, usually 0-50ma DC, inserted in the "B-plus" lead, this transfer of energy can be noted; the DC plate current rises as the coupling between the antenna coil and the tank coil is increased. With a crystal-controlled transmitter the DC plate current is minimum, from five to fifteen milliamperes, when the set is tuned to resonance. As the antenna coupling is increased, this current should rise to the maximum value permitted for the type of tube used. When this point has been reached, the tuning condenser is adjusted to give a minimum reading again, of just a few mils under the maximum. For those familiar with radio theory, this information can be obtained from tube charts, but the novice radio model builder will do best to follow explicitly the directions given with the equipment he is building.

Since we are limited to a power input to the final tube of the transmitter on 27.255mc, a careful choice of tubes is essential. Tubes are made either with a directly heated emitter (for sending electrons toward the plate), such as filament types, or with a cathode heater, where an oxide-coated sleeve heated by a filament is used for the emitter. Generally, for our use, the filament type tubes have a one and a half or three volt filament drawing 100 to 220 milliamperes from the supply battery. The plate voltage is usually between 135 and 180 volts with a current of 15 to 30ma. The power output of the tube is primarily determined by the power emission characteristics of the filament itself. Cathode type tubes operate with a heater voltage of six volts on up to 117 volts and draw from 100 to 800ma. As you can see, the power consumed by a cathode tube in the filament circuit is much more than that consumed by a filament tube. With batteries (*Continued on page 53*)

RECEIVERS

FIG. 6

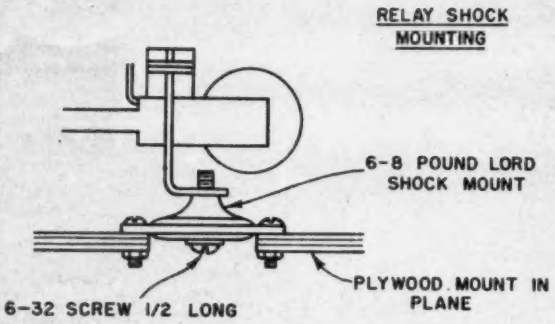


FIG. 7

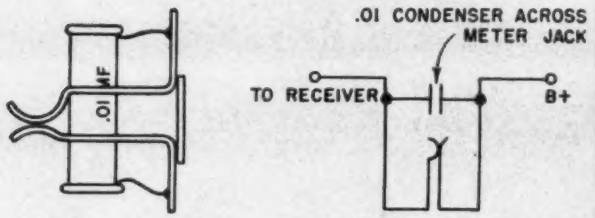


FIG. 8

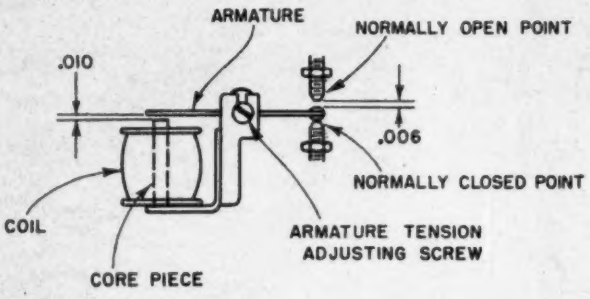
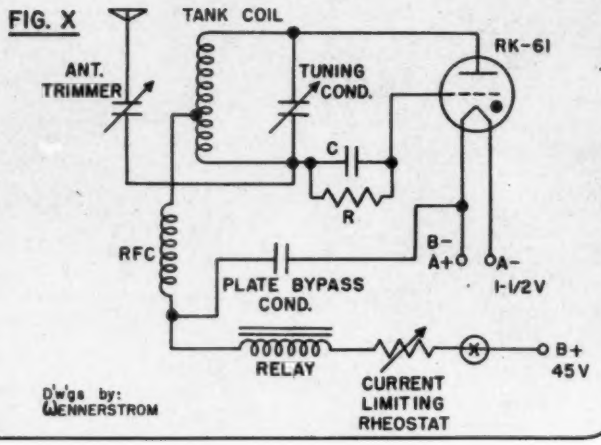
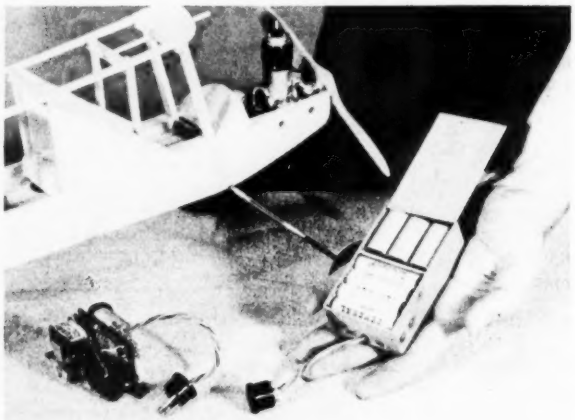


FIG. X





Control Research single tube receiver with plug-in type connections.

RECEIVERS

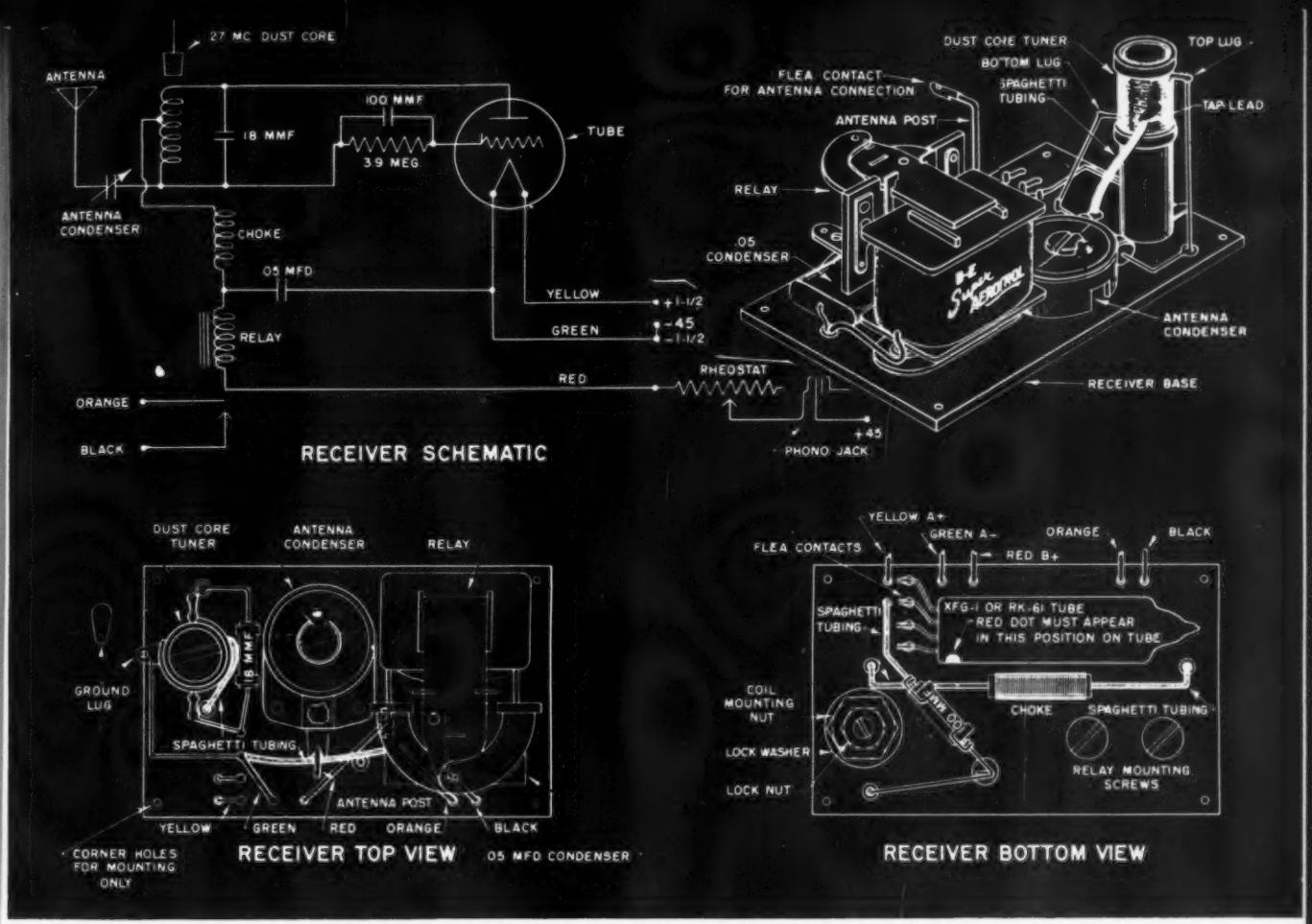
When the rc flier thinks of receivers, he thinks of tubes. Why? It's a long story, here told with clear simplicity that will help the novice get his feet on the ground.

▶ The receiver, "heart" of the control system, is located in the plane where compactness and weight are a prime consideration. Present receivers can be divided into two basic types, those using high vacuum tubes, and those using the RK-61 type, or thyraton. A high vacuum tube has the glass or metal envelope, or "bottle," evacuated in the same manner in which a regular light bulb is made. Life runs into a thousand hours or more. Operationally, it is stable and relatively non-critical of fluctuating voltages, such as might be encountered in batteries after long use.

A thyraton tube has its glass envelope evacuated and then filled with an inert gas. This enables the tube to handle much more current through the plate circuit and, in the case of the RK-61 and XFG-1, makes it more sensitive, since a small voltage sent in to the grid will cause a greater change in plate current. The life is much less than that of a high vacuum tube but the increase in sensitivity and plate current changes makes up for its shorter life in most cases.

The high vacuum tubes are subdivided into receivers operating only on a carrier frequency, such as the Good Brothers, and the multi-stage receivers used for operating a relay on a modulated signal, such as Rockwood's tuned reed system and the audio filtered type of receiver used in the Army target drone. The RK-61 is primarily used for receipt of a straight carrier and is usually a single tube receiver.

Just after the war, when Raytheon brought out a miniature version of their old reliable RK-62, first called the QF-1, and later changed to RK-61, the trend was immediately toward super lightweight and compact receivers. When Aerotrol was first introduced, it weighed two ounces with relay. One and one-quarter ounces was taken up by the relay alone.



These life-size drawings of the Aerotrol receiver are intended only to give the uninitiated reader a concept of parts that make up a typical radio.

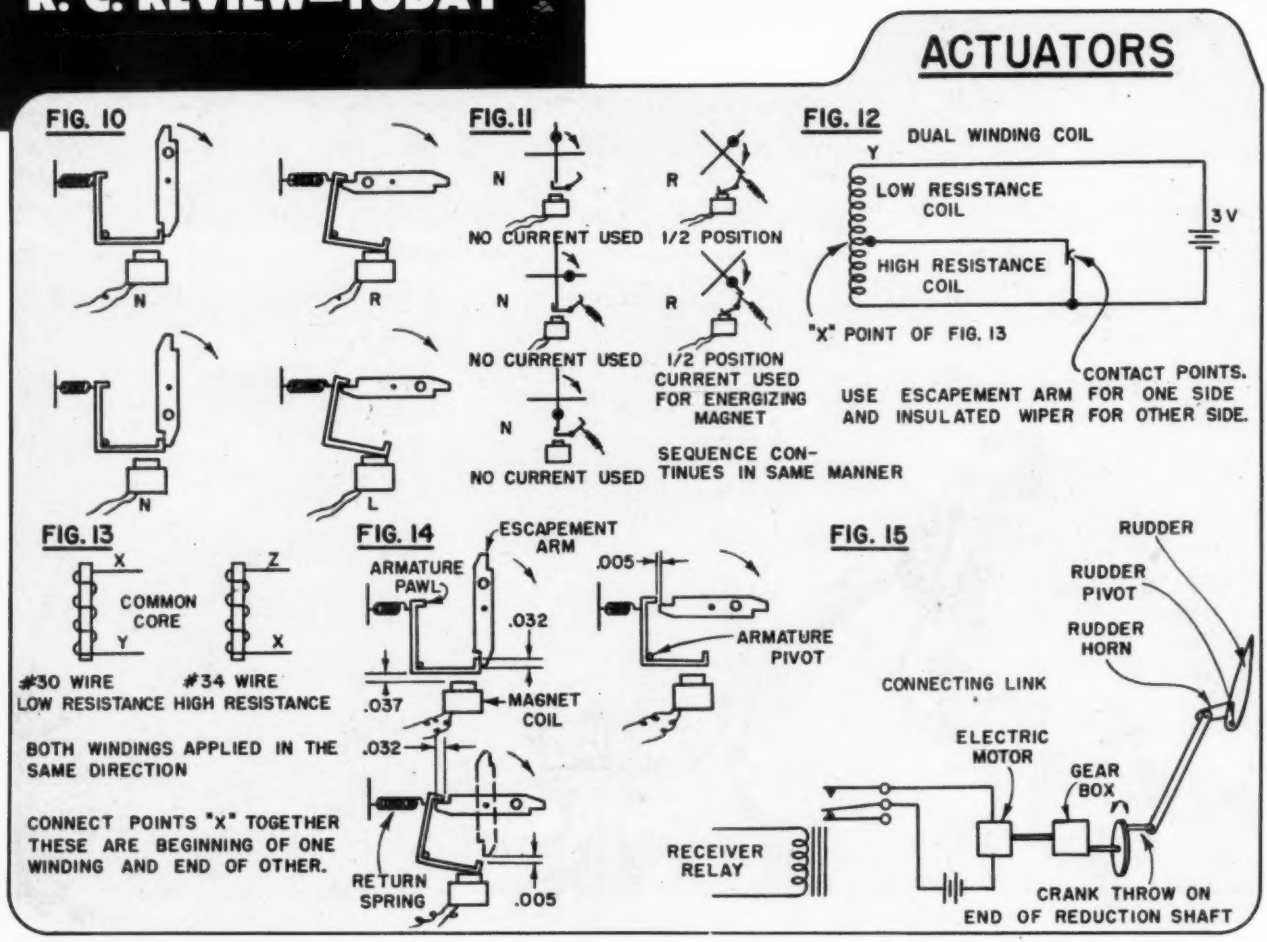
Considerable controversy has arisen over the merits of the high vacuum tube receiver and the RK-61 type receiver. If lightness, compactness, and simplicity are desired, the RK-61 type must be used. By using the RK-61, the chance of shorter tube life is taken in comparison to a high vacuum tube, and perhaps more of a variation in operating conditions is found with the RK-61 when used in a single tube circuit. However, do not regard the RK-61 or the XFG-1, which is the English equivalent, as being unsatisfactory. A two-tube circuit, to be published soon in M.A.N., using either the RK-61 or XFG-1 in the first stage, makes the life and reliability considerations of these particular tubes much better. The first tube idles at .3-.4ma and the second, or relay tube, at zero. Upon receipt of a signal, the first tube drops to .05-.1ma and the second tube goes up to 1.8-2.8ma, depending upon relay resistance and the type of tube used. One cannot expect long life from the RK-61 or XFG-1 if the plate current is run continually at 1.5ma. Many users run the plate current at 1.2 or 1.3ma but that only subtracts from the reliability of the relay with a given setting. If this type of operation with the tube is desired, it is suggested that a Sigma type 4F relay be used. This relay has sufficient power sensitivity to insure reliable contact pressure at low currents.

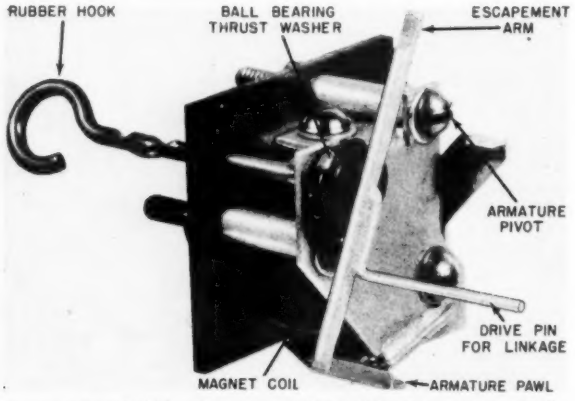
Control Research began a trend of separately mounting the relay and the receiver. This method distributes the weight better and lessens the inertia on the two items during a hard landing. Since the receiver less the relay weighs only about three-quarters to one ounce, it may be set into a box lined with sponge or foam rubber, thus eliminating rubber bands or springs and making a neater and more compact mounting. The wires making electrical connections to the set may be terminated at a four or five-prong plug, which is plugged into a mating socket mounted securely in the plane. The relay is best mounted on a six or eight pound Lord mount or suitable equivalent. Lord shock mounts may be purchased at various stores and occasionally through radio supply shops. Mounting a relay in this manner is shown in Figure 6.

When tuning the receiver, especially when a condenser is used for the purpose, an insulated tuning wand made of plastic or phenolic fibre should be used. Such an item may be obtained from any radio supply store. If a metal screwdriver is used, the frequency will change when it is removed due to a decrease in capacitance caused by body capacity being removed. This change in frequency may not be noticeable near the transmitter but will become apparent when the plane flies a short distance away. Do not use long leads on your meter when checking plate current dip since they may add inductance and capacitance to the circuit while they are plugged in. When the meter is removed, this inductance and capacitance also is removed, thus detuning the receiver. In order to help eliminate this problem, place an .01mf ceramic condenser across the plug jack terminals as shown in Figure 7.

Too much stress cannot be put on keeping wiring neat and on eliminating extra lengths of wire. Rosin core solder should be used at all times. NEVER USE ACID CORE SOLDER. Even though the acid may appear to have been wiped off after soldering, it gets into small crevices and into pockets in the solder and eventually will cause failure of the joint by corrosion. ERSIN, an English solder, has been found to be an excellent solder for electrical work.

With a receiver using a thyraton tube (RK-61 or XFG-1) one of the problems that arises is what to do as the tube grows older and performance becomes less stable. Generally, after five to ten hours use, it is apparent that operation is not as it was at the end of (*Continued on page* 49)





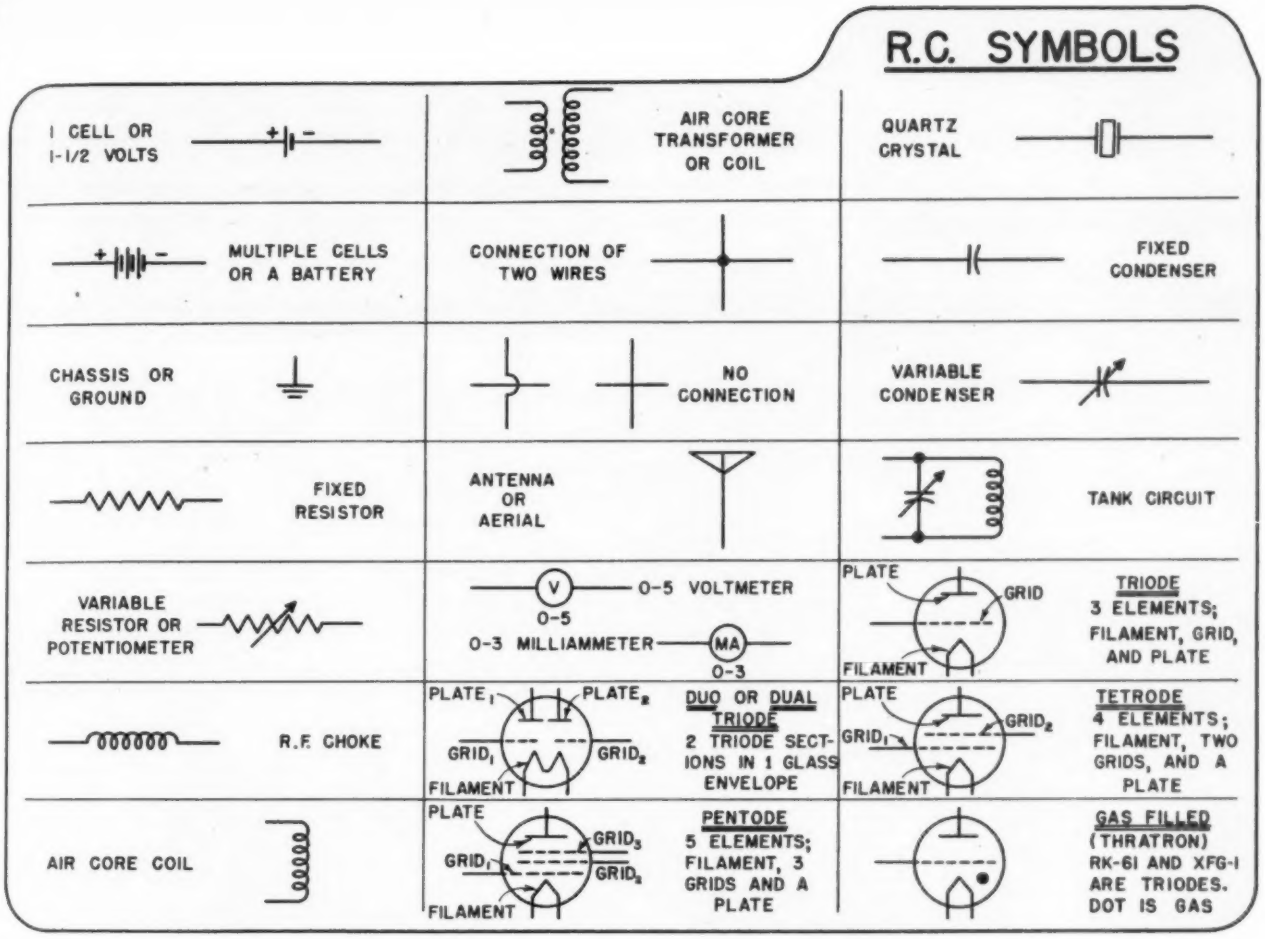
Escapement parts. This a Bonner manufactured for Vernon C. MacNabb.

ACTUATORS

More crack-ups have been caused by faulty escapements and/or their adjustments than from radio failures. The escapement must be understood, and cared for diligently.

An actuator is any electric-mechanical device for moving the various controls, such as rudder, elevator, engine speed, bomb dropping, etc. At the present time, over 90 per cent of the fliers use an escapement actuator. The basic type is shown in Figure 10. The main features of an escapement are the light weight and the use of a rubber band to supply the mechanical power and motion. As can be seen in Figure 10 the main object is that a sequence must be maintained in order to operate the escapement. That is, a pattern must be followed from neutral to left to neutral to right to neutral to left etc. However, this action takes place rapidly enough that its motion is not noted on the average flying model. One must remember the sequence however. Another objection is that on the self-neutralizing type, current is consumed as long as any position except neutral is used. On the four position (Good Brothers, Beacon type in Figure 11) no current is used other than that used to pulse from neutral to left or right and back to neutral. Half positions on this type require current to hold in the half position. The current drain on the Beacon escapement is approximately 300 mils when used with a three volt supply. The average self-neutralizing escapement, when used with three volts, draws from 600 to 1000 mils, and is typical of the single coil construction.

One of the newer developments in the escapement field is the current saver device, first placed on a model escapement by E. D. of England. The feature of this type escapement is that even though one ampere may be used to trip the armature pawl, only 90 milliamperes will hold it in place. The one ampere surge is only for a fraction of a second and then the drain is reduced. The author has used penlight cells for about three months of flying with an escapement like this and entirely reliable operation has been had at all times. (*Continued on page* 43)



GLOSSARY

A Supply—The battery or power source used to heat the filament of a tube. For our use, usually 1½ volts. Symbol given as A plus and A minus in a diagram.

Amplifier—Usually a vacuum tube circuit used to amplify or build up the radio energy, in either the transmitter or receiver.

Antenna—A length of wire or rod used to radiate radio energy from a transmitter and used to pick up such radiated energy at the receiver.

Audio—Audio or AF (audio frequency) covers the range of tones capable of being heard by the human ear about 15,000 to 20,000 cycles per second. Audio tones are used in radio control work to broaden the number of controls which can be transmitted over the same radio frequency.

B Supply—The high voltage applied to the plate of a tube and used to produce an electron flow from the filament to the plate. Usually 45 to 67½ volts for receivers and 67½ to 180 volts for transmitters. Symbol given as B plus and B minus in a diagram.

Battery—The source of power for any electrical or electronic device requiring a portable arrangement. Delivers voltage and current.

Carrier—A term applied to the radio frequency energy radiated from a transmitter. Carrier operation is dependent upon only the radio frequency energy.

Choke—A coil which impedes the passage of an alternating current. The lower the frequency the larger the inductance of the coil (See RFC).

Condenser—A device for storing electrical energy and also blocking the flow of direct current. A condenser will allow an alternating or radio frequency voltage to pass through it. Made in either fixed or variable types. Unit of measure is the farad; for our use generally microfarad (uf or mf) or micro-micro-farad (uufd or mmf), micro meaning one millionth of a farad.

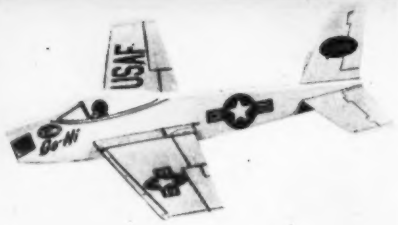
Crystal—A quartz or Rochelle salt crystal cut into a small thin disc or square, used for maintaining a given frequency, the frequency being almost totally dependent upon the thickness. A crystal has the properties of producing a voltage when compressed and released, and of producing a physical displacement when voltage is applied. Crystals are cut at different angles to the axis of the "mother" crystal and therefore several crystals, although all cut for the same frequency, will require different circuits for correct operation.

Filament—The heater in a tube, similar to the filament wire in an electric light bulb. The purpose is to emit electrons which will be attracted toward the plate.

Grid—A screen, or screens, between the filament and the plate, used to control the flow of electrons, depending on the voltage applied to it.

Ground—The A plus or B minus side of a battery and the point to which all connections common to these points are made. Usually made directly to the metal chassis.

Inductance—The term applied to the strength of a magnetic field with relation to the current causing it. Used when speaking of coils of wire. For our work is expressed in millihenries or microhenries, a millihenry being one thousandth of the unit of measure, in this case the henry. Any wire with a current passing through it has inductance, a coiled wire having more (*Continued on page 47*)

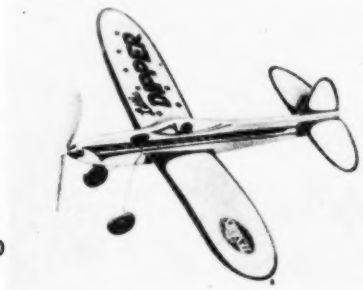


TESTORS 1st MILESTONE MODEL

1st MILESTONE MODEL
Hand-Launched
Go-Hi
10c—Individually Packaged—25c

TESTORS 2nd MILESTONE MODEL

2nd MILESTONE MODEL
Rubber-Powered
LITTLE DIPPER and BIG DIPPER
50c—Individually Packaged—$1.00



TESTORS 3rd MILESTONE MODEL

3rd MILESTONE MODEL
Control-Line Trainer
FRESHMAN "9"—"19"—"29"*
$2.48 $2.98 $3.98

TESTORS 4th MILESTONE MODEL

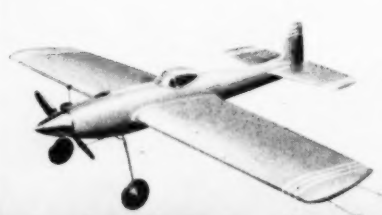
4th MILESTONE MODEL
Control-Line Stunt Trainer
SOPHOMORE "9"—"19"—"29"*
$2.48 $2.98 $3.98

TESTORS 5th MILESTONE MODEL

5th MILESTONE MODEL
Control-Line Stunt
JUNIOR "9"—"19"—"29"*
$3.48 $3.98 $4.98

TESTORS 6th MILESTONE MODEL

6th MILESTONE MODEL
Control-Line Super Stunt
SENIOR "9"—"19"—"29"*
$3.48 $3.98 $4.98



DO YOU KNOW THAT YOU CAN MAKE FILLETS WITH TESTORS MODEL AIRPLANE CEMENT?

This is a very good—and very easy—way to reinforce a cemented joint. First: squeeze a heavy string of cement along the entire length of the joint. Then, even it out at once with several quick strokes of your finger, working pretty fast. Don't press too hard when you do this. Allow the cement to form a smooth fillet without attempting to force it *into* the joint. Be sure not to let it spread too far and wipe off all excess cement immediately.

Preferably, the cement should be rather fresh. If the tube has been used several times before and the contents are a bit stiff, moisten your finger with TESTORS ACETONE before you start forming the fillet.

You will find this technique neat and effective for making very strong joints. Wherever applicable, it is recommended for all general assembly work. However, don't attempt to make *large fillets* in this manner except in case of emergency. TESTORS FYLL has been specially formulated for this purpose, and does a very good job. Nevertheless, if you do want a large cement fillet, make several applications and allow ample dry time between each of them. This caution is necessary, because — although TESTORS MODEL AIRPLANE CEMENT dries fast — it does so only when applied in normal quantities.

Cement fillets may be sanded with TESTORS FINISHING PAPER. *Warning:* do not apply cement over Sanding Sealer or Dope!

HERE'S TOP POWERformance FOR YOUR ENGINE . . . . . .

Testors "39" gives you *everything* you want in fuel for either Glo or Ignition type engines . . . easy starting, maximum power output, dependable all-weather performance, exactly-right quality and quantity of lubrication, extended engine life! Your proof is the fact that Testors "39" has been flight-tested — and openly endorsed — by leading engine manufacturers. Try "39" yourself; give *your* engine top *power*formance!

NEW

TESTORS

POLYSTYRENE CEMENT

Functions as far more than just a stick-together adhesive for polystyrene plastic. Actually it *fuses* the parts together so that they are permanently joined in a real bond. Formulated with proper viscosity to permit easy, even application without excessive running or spreading. Perfect for your model building; also for all kinds of mending and repairing jobs on plastic toys, household items, etc. Comes in handy 15c bottles.

"Musts" FOR ▶ EVERY MODEL-BUILDER

To make your model-building easier . . . and for finer craftsmanship . . . you need *both* of TESTORS MODEL AIRPLANE CEMENTS. FORMULA "A" is *extra fast drying* for quick, easy construction of lightweight models and for on-the-spot repairs. FORMULA "B" is *fast-drying;* the strongest for balsa or hardwood . . . for metal to metal . . . for metal to wood. You also need TESTORS DOPE . . . it has no equal for high hiding power . . . easy brushing or spraying . . . excellent rubbing qualities . . . high flexibility . . . film toughness . . . pure color brilliance . . . makes delicate finishing a pleasure. Remember: Testors Cement and Testors Dope cost a *little* more . . . but they're worth a *lot* more!

TESTORS

PAINT FOR PLASTICS

Developed especially for use on plastic models. It provides good one-coat coverage in most cases and with most color combinations . . . can be applied over a previous, still-wet coat without smudging or blending . . . dries hard and slick . . . has good adhesion on glossy surfaces . . . can also be applied over dull-sanded areas without loss of luster . . . is easy to work with on any polystyrene or cellulose acetate plastic. Available in 10 popular colors: Gray, Blue, Silver, Red, Green, Olive Drab, Orange, Yellow, Black, White; also Thinner. Price — just 15c per bottle.

$100.00 CASH PRIZE

Here's a chance for you to make money — have fun, too! Suggest a name for Testors Paint for Plastics; fill out the coupon; then paste on a postcard or drop in an envelope and mail to us. In the event of duplicate entries, only the one bearing the earliest postmark will be considered.

PAINT FOR PLASTICS CONTEST
TESTOR CHEMICAL COMPANY
ROCKFORD, ILLINOIS

M. A. N.

The name I suggest for your new product — Testors Paint for Plastics — is:

.....
(Please Print Plainly)

My Name.....

Address.....

City..... Zone..... State.....

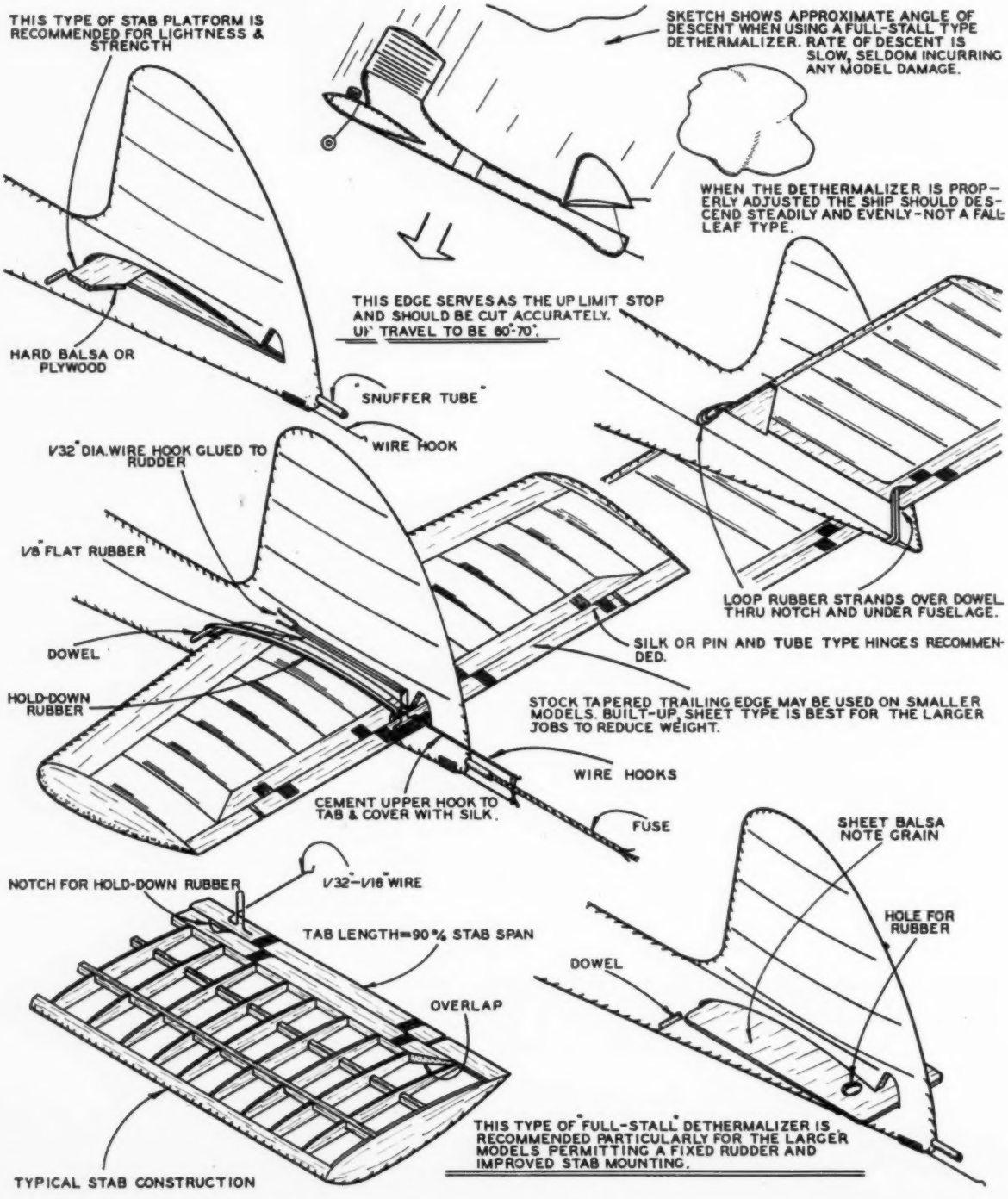
*For the McCOY "9", "19", and "29" engines, the Testor-McCOY "9", "19", and "29" propellers, and Testors "39" fuel.

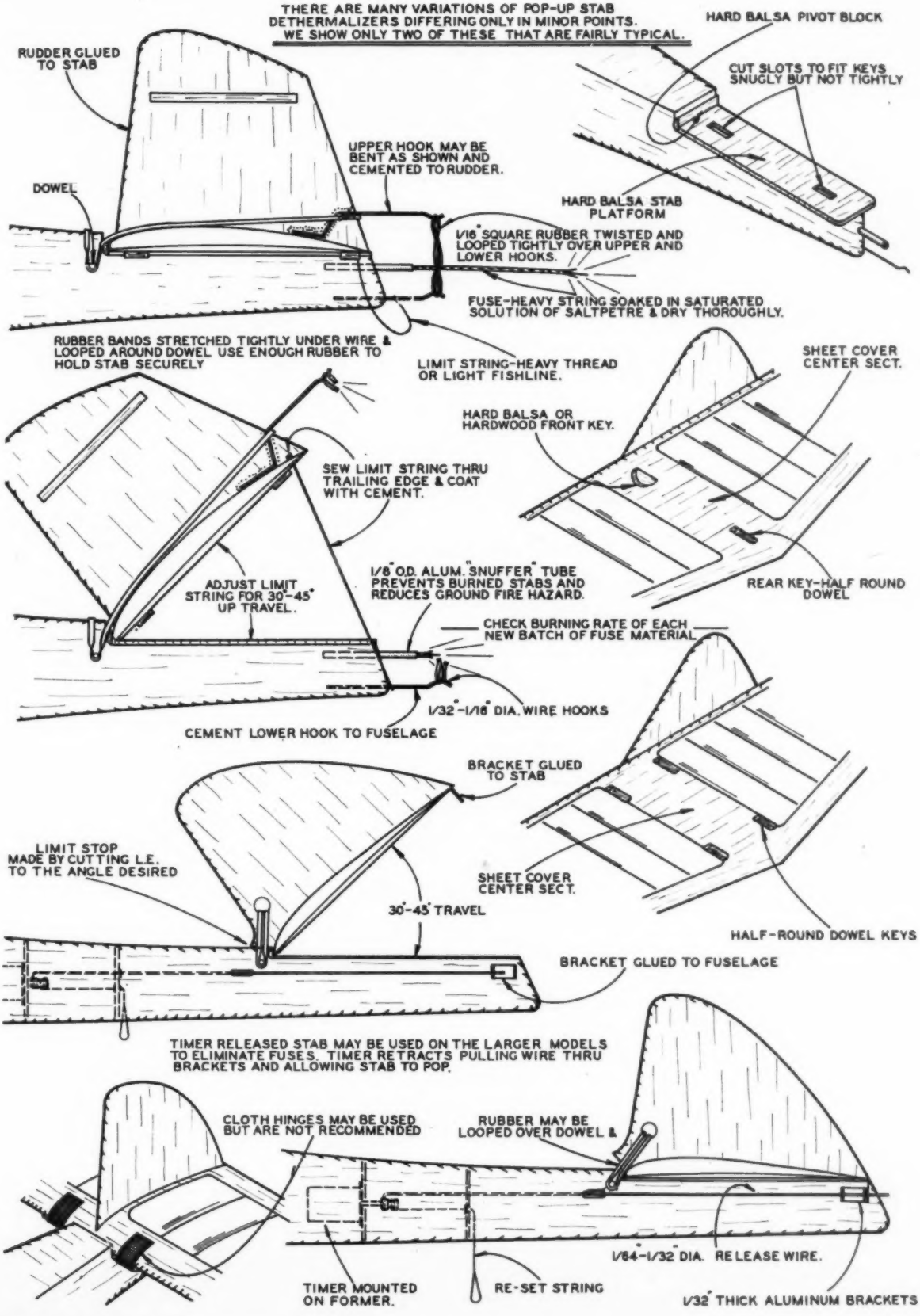
design detail

. . . by Harry Williamson

Stall-type Dethermalizers

Once upon a time, the problem was to get them up; now, it's to get them down. If you have been losing free flights, get hep to these dethermalizers.


THIS TYPE OF STAB PLATFORM IS RECOMMENDED FOR LIGHTNESS & STRENGTH
SKETCH SHOWS APPROXIMATE ANGLE OF DESCENT WHEN USING A FULL-STALL TYPE DETHERMALIZER. RATE OF DESCENT IS SLOW, SELDOM INCURRING ANY MODEL DAMAGE.
WHEN THE DETHERMALIZER IS PROPERLY ADJUSTED THE SHIP SHOULD DESCEND STEADILY AND EVENLY - NOT A FALL-LEAF TYPE.
THIS EDGE SERVES AS THE UP LIMIT STOP AND SHOULD BE CUT ACCURATELY. UP TRAVEL TO BE 60°-70°.
HARD BALSA OR PLYWOOD
SNUFFER TUBE
WIRE HOOK
1/32" DIA. WIRE HOOK GLUED TO RUDDER
1/8" FLAT RUBBER
DOWEL
HOLD-DOWN RUBBER
LOOP RUBBER STRANDS OVER DOWEL THRU NOTCH AND UNDER FUSELAGE.
SILK OR PIN AND TUBE TYPE HINGES RECOMMENDED.
STOCK TAPERED TRAILING EDGE MAY BE USED ON SMALLER MODELS. BUILT-UP SHEET TYPE IS BEST FOR THE LARGER JOBS TO REDUCE WEIGHT.
WIRE HOOKS
CEMENT UPPER HOOK TO TAB & COVER WITH SILK.
FUSE
SHEET BALSA NOTE GRAIN
NOTCH FOR HOLD-DOWN RUBBER
1/32"-1/16" WIRE
HOLE FOR RUBBER
TAB LENGTH=90% STAB SPAN
DOWEL
OVERLAP
THIS TYPE OF "FULL-STALL" DETHERMALIZER IS RECOMMENDED PARTICULARLY FOR THE LARGER MODELS PERMITTING A FIXED RUDDER AND IMPROVED STAB MOUNTING.
TYPICAL STAB CONSTRUCTION


THERE ARE MANY VARIATIONS OF POP-UP STAB DETHERMALIZERS DIFFERING ONLY IN MINOR POINTS. WE SHOW ONLY TWO OF THESE THAT ARE FAIRLY TYPICAL.
HARD BALSA PIVOT BLOCK
RUDDER GLUED TO STAB
CUT SLOTS TO FIT KEYS SNUGLY BUT NOT TIGHTLY
UPPER HOOK MAY BE BENT AS SHOWN AND CEMENTED TO RUDDER.
DOWEL
HARD BALSA STAB PLATFORM
1/16" SQUARE RUBBER TWISTED AND LOOPED TIGHTLY OVER UPPER AND LOWER HOOKS.
FUSE-HEAVY STRING SOAKED IN SATURATED SOLUTION OF SALTPETRE & DRY THOROUGHLY.
RUBBER BANDS STRETCHED TIGHTLY UNDER WIRE & LOOPED AROUND DOWEL. USE ENOUGH RUBBER TO HOLD STAB SECURELY
LIMIT STRING-HEAVY THREAD OR LIGHT FISHLINE.
SHEET COVER CENTER SECT.
HARD BALSA OR HARDWOOD FRONT KEY.
SEW LIMIT STRING THRU TRAILING EDGE & COAT WITH CEMENT.
ADJUST LIMIT STRING FOR 30°-45° UP TRAVEL.
1/8" O.D. ALUM. "SNUFFER" TUBE PREVENTS BURNED STABS AND REDUCES GROUND FIRE HAZARD.
REAR KEY-HALF ROUND DOWEL
CHECK BURNING RATE OF EACH NEW BATCH OF FUSE MATERIAL
1/32"-1/16" DIA. WIRE HOOKS
CEMENT LOWER HOOK TO FUSELAGE
BRACKET GLUED TO STAB
LIMIT STOP MADE BY CUTTING L.E. TO THE ANGLE DESIRED
SHEET COVER CENTER SECT.
30°-45° TRAVEL
HALF-ROUND DOWEL KEYS
BRACKET GLUED TO FUSELAGE
TIMER RELEASED STAB MAY BE USED ON THE LARGER MODELS TO ELIMINATE FUSES. TIMER RETRACTS PULLING WIRE THRU BRACKETS AND ALLOWING STAB TO POP.
CLOTH HINGES MAY BE USED BUT ARE NOT RECOMMENDED
RUBBER MAY BE LOOPED OVER DOWEL &
1/64"-1/32" DIA. RELEASE WIRE.
TIMER MOUNTED ON FORMER.
RE-SET STRING
1/32" THICK ALUMINUM BRACKETS

Dutch boys enjoying popular sport of slope soaring. Soarers well liked all over Continent.

AMA

official news

by RUSS NICHOLS and CARL WHEELEY

National Champ will have tough row to hoe • F.A.I. prodded on real Internationals • new F.A.I. records • the contest calendar

SELECTION OF 1952 NATIONAL CHAMP. In an effort to select true National Champions in the three age classifications, each of the contestants who desire to compete for this honor must fly in at least nine events at the Nationals; three in each of the following categories: 1—Control Line; 2—Free Flight Gas; 3—Non-gas-powered Free Flight. Radio control may be classed in either group one or group two.

Only the models designated for championship competition will be taken into account for the final championship scoring and these models, specified at the time of registration, will be so marked during processing. Contestants may enter more events than the ones designated for championship scoring.

The contestant's effort in his designated championship events will be rated against the winning time, points, or speed in determining point values. The winning time, points, or speed will represent 100 points and the contestant's efforts will be rated proportionately. Any flight will be worth some points—never can a contestant draw a blank in an event that he designates as a championship event provided some time, points, or speed is recorded. The National Champion of the three age classes amassing the largest point total will be named the Grand National Champion.

John Bollinger, Nationals Contest Director, believes that the method of selecting the National Champion should not be left up to the contest management each year but, rather, a method should be devised by the AMA Contest Board which would remain unchanged from year to year and be printed in the AMA Rule Book. Send suggestions to your nearest Contest Board member.

Most of you should have your entry blanks for the Nationals by now since they were included with the mailing of the Wakefield Booklet to the entire membership. If you don't have one, though, write to AMA, 1025 Connecticut Ave., Washington 6, D. C.

Another word or two about the Nationals entry blank: only one class is listed on the blank for the U. S. Navy Carrier Control Line Events. Instead, two classes should have been listed, AA and combined ABCD, so be sure, when filling out your blank, to list which event you are entering.

There is to be an experimental PAA Payload Rubber event at the Nationals this year. The rules for this event have not been publicized so we suggest that you write to George Gardner, Educational Director, PAA, 28-19 Bridge Plaza North, Long Island City 1, N. Y., for complete rules.

Word just received indicates that both male and female contestants can be at N.A.S. Los Alamitos at a very nominal charge, probably only 50 cents for the entire period. Also, facilities of the Navy General Mess can be used by both male and female contestants at a cost of $1.20 daily for three meals.

F.A.I. MODEL COMMITTEE MEETING. A meeting of the F.A.I. Model Committee took place early last May with representatives from Great Britain, Spain, Switzerland, Belgium, Holland, and France in attendance. The wishes expressed by the International Model Aircraft Committee to the Main Committee of the F.A.I. seem very fitting to us so we repeat them here:

"At this time when the practice of private aviation is encountering great difficulties the whole world over, aeromodeling would seem to be the most complete means of disseminating information.

"If powered aircraft records are within the reach of a few tens of persons, touring aviation records are within the reach of a few hundred pilots, and sail flying, a few thousand, it may be said that thousands of young people in all parts of the world are interested in model aircraft records.

"Besides its action as a disseminator of aeronautical information among the young, aeromodeling is in itself a marvelous means of education, since it makes those who practice it study the laws of aerodynamics, practice drawing, handwork, and the virtues of patience and perseverance.

"Furthermore, it is a real open-air sport, and one of the best.

"It was too long neglected, or looked upon as a minor activity in the field of aeronautics but the members of the C.I.M.R. (Model Committee) are pleased to see that the Committee of the F.A.I. now appreciates their work as the result of efforts pursued by some of them for more than 20 years.

"This movement is still in need of powerful help, and the high aeronautical authority of the F.A.I. could give this.

"The C.I.M.R. would wish the F.A.I. to endeavor by all means: a) to assist effectively in the organization of World Championships, which are held in accordance with its rules and regulations; b) to create certificates to be awarded yearly to F.A.I. champions; c) to obtain from air lines traveling facilities for aeromodelers going to championships abroad and, if necessary, to intervene with this end in view with the I.A.T.A.

(It does indeed seem paradoxical that this kind of publicity among young people, who may be the pilots and technicians of the future, or simply future amateurs of air traveling, should be ignored, when large sums are spent every year by all companies to develop their traffic.)

d) to approach customs authorities to get all facilities granted at frontiers to teams traveling with their models which are really "instruments of sport."

"The International Model Aircraft Committee earnestly hope that their wishes will be heard and granted. That would be the best reward the members could wish for after all their work."

NEW F.A.I. RECORD. The Federation Aeronautique Internationale Information Circular No. 60 lists one new World "Class" Record:

Gas Models, Flying Wing, R.O.W., Control Line Speed, Class II—97.875 km/h. (60.817 mph). Record established by Vladimir Cassiltchenko (Russia) on November 27, 1951, using a motor of 4.4 cc. piston displacement.

AMA RECORD PENDING. Outdoor Hand-Launched Glider, Class B Senior—7:04.6. Flights made by James Carpenter, Lubbock, Tex., on April 13, 1952, using an original design.

CONTESTS

JULY

4—*Anchorage, Alaska.* Pending.

1—*Peoria, Ill.* Class AA Central Illinois Model Air Circus for CL, CLS, FFG, RC, TR, combat, and scale. Morgan Baldridge, Contest Director, 327 So. Washington St., Peoria 2.

4—*Coffeyville, Kans.* Alvin Miller, C.D., c/o Fadler Produce, 109 East 7th, Coffeyville. Pending.

4—*Trenton, N. J.* Team Racing Contest. Martin Michlik, C.D., 237 E. State St., Trenton 8. Pending.

5-6—*Shreveport, La.* Plymouth Elimination Meet. Capt. W. D. Horton, C.D., 1339 Michael Dr., Bossier City, La. Pending.

6—*Baltimore, Md.* Second Annual Greater Baltimore Model Airplane Championships for CL, CLS, beauty-scale, combat, TR, FFG, free flight scale, OR, TLG, OHLG, RC, and PL. Clayton Morgan, C.D., 3801 W. Saratoga St:. Baltimore 29. Pending.

6—*Akron, O.* Class AA Akron Society of Model Plane Engineers' Meet for OHLG, TLG, and OR. Frances Alexander, C.D., 25 Mull Ave., Akron.

6—*Westfield, Mass.* Class AA Third Annual Free Flight Meet of Holyoke Gas Model Club for FFG, TLG, and OHLG. James W. Denehy, C.D., 78 Lyman St., Holyoke.

6—*Bridgeport, Conn.* Contest for CL, CLS, CLFS, and combat. Earl "Bud" Gay, 629 Boston Ave., Bridgeport. Pending.

6 & 13—*Salt Lake City, Utah.* Plymouth Utah State Model Airplane Contest. Jack H. Douglas, C.D., 133 East 2nd South St., Salt Lake City. Pending.

9-15—*Amarillo AFB, Tex.* Air Force World Wide Model Airplane Championships.

12-13—*Topeka, Kans.* Pending.

12-13—*Bismarck,* N. D. Arthur J. May, C.D., RFD 2, Bismarck. Pending.

13—*Minneapolis & St. Paul, Minn.* Plymouth Meet. Pending.

13—*Hatboro, Pa.,* Philadelphia Plymouth Dealers' Model Plane Contest for FFG, OR, CL, CLS, beauty, and RC. Matty Sullivan, C.D., 2078 Simon St., Philadelphia 24, Pa.

13—*Joliet, Ill.* Glenn F. Stearman, C.D., 420 Landau (*Continued on page 52*)

KENHI

CIRCLE OF WINNERS

THE FINEST QUALITY SEMI-SCALE FLYING MODELS

Look at these Features!

★ **BEAUTIFULLY DESIGNED**
"They look like real airplanes"

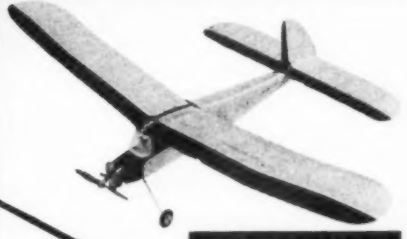
★ **DESIGNED BY "HI" JOHNSON**
Backed by 20 years of experience in designing contest winning models. Co-designer of the GO DEVIL. Designer of the CHIEF, WARRIOR, SQUAW, COMANCHE, BRAVE, SIOUX, and many others.

★ **KWIK-LOK CONSTRUCTION**
All parts are die-cut, formed and fit together with ease.

★ **ILLUSTRATED PLANS**
Step-by-step drawings make **KENHI** Models easy to build for the novice or experienced modeler.

★ **DESIGNED FOR FLIGHT**
Aerodynamically correct for stable flight and ease of maneuvering for the novice or experienced modeler.

★ **KITS INCLUDE**
Bell Crank • Control Horns • Control Rod Keepers • All Controls and Lead-out Wire • Hinges • Formed Landing Gear • Motor Mounts • Screws • Die-cut Windshield • Fully Pre-Fabricated Wood • All Detail Parts Die-cut • Decals • Wing Covering • Complete Instructions.



the BEAVER

$2.95

Easy-to-Build
Easy-to-Fly

NOTE: The KENHI "WILDCAT" although handicapped 40 points, because it wasn't painted, and on its third flight, won the first contest it was ever entered in. The 1952 National Orange Show Contest, San Bernardino, Calif. "Wildcat" flown by Frank Dawson, Van Nuys, Calif.

SPECIFICATIONS	WILDCAT	BOBCAT	COUGAR	MUSTANG	BEAVER
Wing Span	39 in.	39 in.	51 In.	48 In.	44 In.
Length Overall	30¼ In.	30¼ In.	36¼ In.	36½ In.	26 In.
Wing Area	330 Sq. In.	387 Sq. In.	412.5 Sq. In.	372 Sq. In.	233.375 Sq. In.
Fap Area	55 Sq. In.		137.5 Sq. In.	84 Sq. In.	
Total Wing Area	385 Sq. In.		550 Sq. In.	456 Sq. In.	
Air Foil	HJ-03515	HJ-03515	HJ-03515	HJ-04015	HJ-10400
Finished Wt. (Approx.)	2¼ Lbs.	2 Lbs.	2¾ Lbs.	2½ Lbs.	6 Oz.
*Wing Loading	.093 Oz.	.083 Oz.	.084 Oz.	.087 Oz.	.0257 Oz.
*Wing Loading with Occupant					.0248 Oz.
Class	A-B	A-B	B-C	B-C	½A
Type	Full Stunt	Stunt Trainer	Super Stunt	Full Stunt Scale	½A PAA Lead

*Per Sq. In. (Approx.)

Manufactured by

KENHI **MODEL PRODUCTS** Burbank, California

Fly With KENHI

See Your Dealer

So you think you have it tough. Hear now, fellow modelers, of the trials of your local hobby shop dealer.

"How Much Are Your Ten Cent Gliders"?

by ***MARY J. SAMUELSON***

After several unsuccessful attempts at transforming balsa, cement, dope, and tissue into a reasonable facsimile of a model airplane, something finally happened. With the able assistance of Lady Luck and the support of the 11:15 thermal, I took first place in our City's largest annual free flight meet. This led to my innocent acceptance of a part-time job in a Hobby Shop. Today I woke up to discover that I am now a full time, what the ads call "Your Hobby Dealer," and I can remember WHEN—but more of that later.

Now, my achin' back! The backbone of the hobby, ye, the Scrooge who wrenches your last, hard-earned cent away for a mere half-pint of "Blast", has good reason to creak. Fellow modeler, hear now of the trials of Your Local Dealer. . . .

"Hey, lady, how much are your ten cent gliders?" usually comes from a youngster who will eventually realize that a ten cent glider costs a dime. One at a time they are lovable little fellows, but twenty of them yelling and drooling over your freshly polished counters make you wonder about taking up chocolate dipping. I take my hat off to them, though. With the prices increasing every day, I wonder how long it will be before I must answer, "Fifteen cents." This could throw the entire younger generation into chaos.

The Mail Orderer usually resorts to a gem like this at one time or another: "Inclosed is a faulty niddle valve. It don't turn with my gentle fingers so I took the pliers to it. It broke. Please send one of the same make but more sturdy. P.S. If I don't get it free send it C.O.D." Standard routine upon receipt of such a request is to line up all the customers and Conga through the store chanting, "If I don't get it free, send it See-ohh-dee (bump)."

Stinkers are (fortunately) few and far between. Model builders are generally honest sportsmen and have but scorn for a Stinker. Stinky wandered into the shop in the middle of June bundled in a heavy, bulky overcoat. When the store was deserted, he summoned me to a corner and withdrew the remnants of a once beautiful free flight from the folds of his garment. It was obvious from the condition of the ship and engine that it had been lost and exposed to the elements for some time. "Say," hissed Stinky, "will this thing run?"

"No reason why it shouldn't. Where did you get it?" I asked. "Just bought it from a friend who shipped to Upper Slobovia," he recited in a monotone. I turned over what was left of the prop and a wet squish emerged. "What have you tried running it on?" I asked. "Lighter fluid," he stated. A customer came in, Stinky's eyes shifted, and he darted from the store before I could challenge his possession of the results of someone else's midnight oil.

The Indulgent Father brought his son in and bought the works. They returned later, beaming over their accomplishment, bought fuel and went to fly. The son came in alone that evening and hauled away a load of balsa. Every evening the boy would come in for more supplies, looking haggard now, circles under his eyes. Nibbling the glue from his fingers with a sad little smile, he'd say, "Dad's getting pretty good. He can ALMOST do an outside loop." Sunday afternoon Father marched in, selected a few pieces of balsa at random and confided with a wink, "Darn kid sneaked out before I got up this morning."

Once in a while someone's Original will hook a thermal. He immediately has 1,000 photo- (*Continued on page* 54)

THE FOUR MOST OUTSTANDING JETS

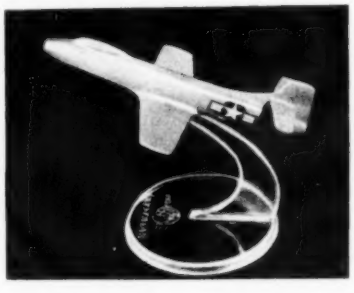
and the famous

DOUGLAS NAVY SKYSHARK with Turbo Powered COUNTER-ROTATING PROPS

Jet Power, the power of tomorrow, is seen and felt in every line of these beautiful plastic models. Built to scale, each is an exact reproduction of its original. Easy to assemble, they become a beautiful decoration for your room or den.

The A2D Skyshark, illustrated to right, is a powerful new attack bomber and is the first American attack type to successfully use turbine propeller power. **$2.49**

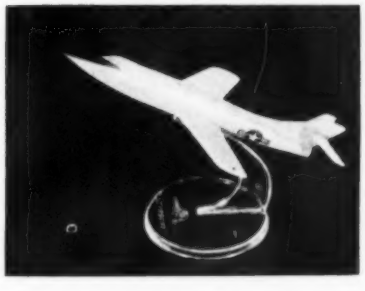
DOUGLAS NAVY SKYSHARK



DOUGLAS NAVY SKYSTREAK

This is the radically advanced airplane that captured two world's speed records in 5 days.

$1.79



DOUGLAS NAVY SKYROCKET

Revolutionary research craft designed and developed for U. S. Navy at Douglas' El Segundo Plant.

$1.79

DOUGLAS NAVY SKYNIGHT

A fast, long-range fighter, adaptable as an attack fighter, long-range patrol or reconnaisance plane, or long-range fighter escort.

$2.49

BOEING B-47 STRATOJET

The swept wing Boeing B-47, the world's fastest jet bomber, has proved itself to be outstanding in performance.

$2.49

"THE CHOICE OF THOSE WHO WANT THE BEST"

See your local dealer — and be sure to ask for ALLYN'S

Allyn SALES CO., INC. • 6425 McKINLEY AVE. • LOS ANGELES 1, CALIF.

POLK'S FOR RADIO CONTROL

Now it can be told!!! The wraps are off! The new "Hi-Power" "E.D." Radio Control unit is ready for delivery on the FREE BAND (27.255). The "E.D." R.C. unit is crystal controlled (precision ground to +- .04% on frequency) & ready to install! Completely factory tested, NOT A KIT, fully guaranteed! NOTHING TO BUILD! All switches, battery plugs, meter plugs, hook-up wire & even solder included.

Fully perfected Radio Control outfit now available to the modeller. World renowned for its reliability & ruggedness — so simple to use — nothing to test — just install & fly. Special transmitter chassis with "locked in" wiring & triple chrome plated telescopic whip antenna puts "E.D." out ahead with power output. Complete instructions included. Receiver will fit (with room to spare) in even the smallest R.C. model. All tubes included. Only a few dollars more than kit sets (which come less tubes).

$52.90

Complete 3 pc. outfit Prices Separately

RECEIVER $19.95

ESCAPEMENT $5.95

TRANSMITTER $29.50

TRANSMITTER: 3A4 tube giving greater radiation than any other CRYSTAL controlled transmitter. Entirely self-contained including new, handsome triple chrome plated telescopic whip type antenna. New "E.D." Aristrol EXCLUSIVE "lock-in" wiring plus close tolerance, pre-tested, electronic components made for a "Hi Power" transmitter. Checked on frequency to conform to FCC ruling of +-.04% on frequency. Batteries 135 volts & 1.5 volts. New comfort fit keying switch with 7 ft. plug-in extension cord gives freedom of control.

RECEIVER: Matched electronic components makes for 100% performance from the new sub-miniature gas-filled R.C. tube. Variable inductance tuning eliminates difficulties on the field. Small volumetric size achieved by tubular case. Weighs 1¼ ozs. Uses two 22½ batteries and one 1½ volts pen cell.

ESCAPEMENT: 100% reliability due to robust & accurate construction of claw & rotor. Special double winding and current-saving device increases battery life, a feature first developed by E.D. Weighs only ¾ oz. Uses 3 pen cells.

The choice of champions and novices alike, E.D. Radio Control Units has built a proud, unfailing performance reputation the world over!

Your best buy for control, experiment or pleasure! (Mail order—send check or M. O.; add 1.00 for postage & packing. No C.O.D.)

POLK'S SPECIAL CONVERSION SERVICE! We will convert any E.D. receiver-transmitter to 27.255 M.C. for $12.95. Includes precision ground crystal. Send INSURED, to POLK'S R.C. Dept. We return postpaid. (Send check or M.O., no C.O.D.)

POLK'S are Radio Control Headquarters! In stock — All leading brands of Radio Control Sets & components.

R. C. Introduction

(*Continued from page 21*)

consists of a tube for generating the high frequency oscillations needed for radiating energy, a quartz crystal for maintaining this frequency at an exact point, a tank circuit where the high frequency energy is "manufactured" and stored, a power supply (usually batteries), an antenna for radiating the generated radio frequency energy, a key or switch for turning this energy on or off as needed, and small component parts such as resistors and condensers.

The receiver is composed of a tube used for amplifying and rectifying the incoming signal, an antenna for picking up the energy transmitted from the transmitter antenna, a tank coil for tuning to the same frequency as that produced by the transmitter, a relay used for converting small electrical currents into mechanical motion in order to close contact points, and a power supply from which to operate.

The actuator is the unit used to mechanically operate the rudder or other controls. This is an electro-mechanical device, since a small magnet coil is used in one way or another to release stored-up mechanical motion. The escapement is the most commonly used actuator because of its simplicity, low cost and weight. The magnet coil is connected in series with the relay contact points and a battery, usually 3 to 4-1/2 volts, for energizing the magnet.

This is the sequence of events that occurs in order to move a control. Remember that radio waves travel at the rate of 186,000 miles per second and the lag in time of the mechanical action of the relay and actuator is from 20 to 100 thousandths of a second. Thus the element of time can be disregarded. When the key on the transmitter is pressed, the tube and its associated parts generate the radio frequency which is radiated from the transmitter antenna. This energy is picked up by the receiver antenna and is amplified and rectified by the tube and its components. The change in plate current of the tube is fed through the relay. When the plate current changes so that the relay points are closed, this closes the circuit through the actuator and its power supply batteries.

This operation is for carrier control of one actuator only, and is typical of 90 per cent of the control systems used throughout the world today. By carrier control, we mean that only the radio frequency energy, or carrier, is used to operate the receiver circuit.

What makes the transmitter and receiver work is given under the "Transmitter" and "Receiver" sections. It is written to give you an acquaintance with the circuits rather than delving into the theory in detail. For those desiring more complete information on the radio theory, and detailed explanation of electrical and radio terms, applications and practical uses, we refer you to the following publications: THE RADIO AMATEUR'S HANDBOOK —$3.00; HINTS AND KINKS FOR THE RADIO AMATEUR, Volume 4—$1.00; A COURSE IN RADIO FUNDAMENTALS—$.50. These are published by American Radio Relay League, Inc., West Hartford, Connecticut.

For those who are interested technically in the FCC rules and regulations governing the use of this frequency, Docket 10086 may be obtained from the FCC, Washington, D. C. Basically, the highlights as interpreted by the writer are as follows, and we suggest that they be adhered to closely so as not to jeopardize radio control development and flying:

(1) The frequency of 27.255mc has been assigned for radio control use on a non-exclusive basis and is subject to such interference as may be encountered from industrial, scientific and medical equipment.

(2) Frequency tolerance is plus or minus .04 per cent from 27.255mc, the band width being from 27.230-27.280mc. Power input is limited to five watts to the section of the transmitter to which the antenna is connected.

(3) The control of model aircraft may be made by using a continuous radiation of an unmodulated carrier. For remote control of other objects only on-off unmodulated or amplitude tone modulation may be used.

(4) A standard FCC Form No. 505 must be filed with the FCC giving type of equipment being used.

(5) In the event that harmful interference results to services outside of either the 27.230-27.280mc or 460-470 mc band, the licensee shall discontinue operations at once upon notification from the FCC. The radiations of the transmitter shall be suspended until such defects and deviations have been corrected.

Another important question is what tools and supplies are needed. This matter can range from a few used components and a pair of "Ford" pliers to an elaborate bench setup with all the necessary meters for experimental work. However, the following items will give you a good start toward developing and building radio control units: 1 small pair diagonal cutters; 1 small pair long nose pliers; 1 soldering iron (Ungar iron with small and large tips or a small tipped 60 watt iron); A few small fine cut files, assorted sizes and shapes; 1 hand drill and assorted drills from 1/32" to 1/4"; 1 small pair tin snips; 1 bench multimeter (Precision Test Equipment Company, Series 40 or Series 86; Chicago Industrial Instruments Company, Multiplex Model 458-A; Radio City Products Company, Inc., Pocket Multitester Model 449-A; Hickok Model 450; Superior Model 770; Triplett Model 630; MacNabb multimeter); Tuning wand of plastic or fibre (for adjusting tuning condensers); Small screwdrivers; Assorted sizes of wire, solid and stranded, solid wire in enameled type in sizes from No. 14 to No. 36, as needed; Resistors and condensers, as needed; Assortment of sheet aluminum, brass, iron, and micarta insulation, in various thicknesses .020 to .062.

The wire, resistors, condensers, sheet stock, etc., should be gathered as needed for each particular job.

The meters listed above were chosen as being most suitable for radio work due to their voltage and current ranges. The prices vary from about $14.00 to around $40.00. These meters are of the portable type so they may also be used for field work. Individual meters (0-1ma DC, 0-5ma DC, 0-10 volt DC, etc., may be used but to cover the ranges needed would probably be too expensive. Remember, you get what you pay for and good tools and good equipment make for better workmanship.

"DIESEL DEPENDABILITY"

bore .40, Stroke .64, Speed 10,000 RPM, HP 1/10, Thrust 20 oz. Weight 3½ oz. THROTTLE gives full control of plane in free flight, control line or radio control. Standard on .08.

Mills .08 CU. IN. WITH THROTTLE $13.95

Mills .045 CU. IN. $10.95

Bore .33, stroke .52, Thrust 10 oz., Weight 1¾ oz.

COMPETITION SPECIAL

.12 DISPLACEMENT WITH CUT OFF $13.95

3 in. h., 1⅞ in. w., 4 in. l. Can develop ¼ H.P. Total wt. incl. prop. 6½ oz. Thrust 16 to 18 oz. Bore ½ in., stroke ⅝ in., 6,500 RPM. For planes with 3 to 5 ft. span.

E.D. .065 cu. in. BEE $11.50

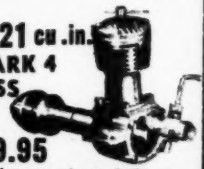
Bore 0.437, Stroke 0.400, speed 7000 RPM, Thrust 12 oz., Weight 2¾ oz. Disc inlet valve with induction pipe through center of fuel tank. Class ½ A.

E.D. 15 cu. in. RACING SPECIAL

2¼" high, 3½" long, 1¾" wide. For use as diesel, Glo-plug head available. Develops ½ H.P. at 14,000 RPM. Weight 5 oz.

$16.95

Bore 0.456, Stroke 0.625 inches. Speed 10,000 R.P.M. Wt. 5¼ ozs. Exceeds thrust of most 5 c. c. engines, 3" high, 1⅞" wide, 4⅞" long.



E.D. .21 cu. in. MARK 4 CLASS B $19.95

POLK'S MODEL CRAFT HOBBIES, INC.

Dept. N-82 314 Fifth Avenue (at 32nd St.) New York City 1

DEALERS: Rush your order to Polk's at regular trade discounts. Also: enjoy single-shipment wholesale service for ★Airplanes ★Engines ★Supplies ★Accessories ★Railroads ★Ship Models ★Art Supplies ★Books ★Constructo Finished-Parts Ship Models with Finished Displays.

The Jenny

(*Continued from page 12*)

The cockcades were cut out of a piece of cardboard and then outlined on the *top* of the upper wings and on the *bottom* of the lower wings, and colored with red, white and blue dope, as shown. Vertical stripes are ruled on the rudder and colored red, white and blue. The rest of the plane is colored silver or aluminum except the cylinder heads, exhaust pipes, and radiator, which are copper, and the tires, which are full black. Outline all control surface joints with a ruling pen and India ink. The lettering is done with a medium nib lettering pen.

Engine cylinder heads are shaped from 1/4 x 1/2 balsa blocks and cemented in place. Exhaust pipes are made from 1/8 x 1/4 balsa sanded to oval shape and cemented in place. The top engine cowling and radiator are made into a single unit. The 1/32 sheet is wet and preformed on the shaped block while making the radiator from 1/4 sheet medium balsa. The 1/16 x 1/16 balsa strips are cemented to the back of the radiator to provide guides for holding it in the fuselage, and to provide bearing surface to cement cowl to. Hole was cut in the cowl to provide room for the cylinder head to stick through. Copper screening was used for the radiator core, and to the inside of the shell. After assembly, a slot was cut in the bottom of the radiator so the unit could slide into place on the nose, over the crankshaft of the motor. This piece was cemented on the front of the fuselage. Cut another hole in the cowl to be able to prime the motor for starting.

The cockpit coaming is made from split black tubing. Squeeze into the tube and install over the edge of the cowl. The joint was made at the front of the cockpit. Windshields are cut from plastic, heated in hot water to make pliable and taped to the cowl block to preform them. When cool, they are cemented to the front of the cockpits.

Build up the center section around the wing support tab and install on the center section struts. Care must be taken to line it up with the fuselage, and to make sure the bottom of the airfoil is parallel with the reference centers. This is to give the upper wing no angle of incidence. Use plenty of cement in thin layers to get a good joint. The center section can now be covered, the bottom with 1/32 sheet balsa and the top with *Silkspan*. Shrink with water and apply one coat of cut dope to seal.

The axle is 1/16 piano wire. Solder washers to the wire so that it centers on the landing gear struts. Install wheels and solder washers to the end of the wire. Secure the axle to the struts with rubber bands; these act as shock absorbers. Secure double brace wires of silk thread to the landing gear struts with clove hitches. The clove hitch is used because it can be tightened as it is tied and does not loosen. Knots are doped before trimming off the ends of the thread. Information on the clove hitch can be obtained from any Boy Scout Handbook.

Both the tail surfaces are made in like manner. Movable control tabs were inset in the trailing edges of the surfaces instead of using the large scale surfaces. It was thought that adjustments for flying would be too delicate to be practical. The surfaces are built as one unit about the spar. Strip 1/16 balsa sheet into ¼ strips to make the ribs. Assemble the unit on the plan, cement, and when dry, remove and recement all the joints before sanding to shape. Make a flat sandpaper block about 2 wide by 6 long by cementing sandpaper to a block of wood. In this way, sanding can be done uniformly over a wide area. After sanding to shape, dope the frame with a coat of cut dope to seal it, and lay flat to dry. Be careful of warps here because a bent frame causes bad flying characteristics. The control horns are sanded to shape and cemented in place before covering the surfaces. Cover with *Silkspan* that has been slightly dampened and finish off with a coat of cut dope when dry. It might be well to lay a weight or two on the frame to keep it from warping.

All control and bracing wires are now installed. Heavy silk thread was used. It is best

(*Continued on page 40*)

Unbeatable COMBAT Thrills!

KIT S-3
SPAN 40"
FOR
A-B-C
ENGINES

Sterling's $2.95

YAK-9

SISTER SHIP TO THE MATCHLESS MUSTANG!

AT LAST! THE RYANS ARE IN!

The most talked-about stunt model in years is at your dealer's NOW!

BE SURE YOUR YAK IS BY STERLING!
LOOK FOR MATT KANIA'S PICTURE ON THE BOX!

Here it is . . . the last word in combat stunt flying thrills — Matt Kania's YAK-9 — perfect sister ship to the fighting F-51 Mustang! The aerodynamic force arrangement and the performance of both models is equally sensational. That's why combat stunt flying with the YAK vs. the MUSTANG is a natural. To be sure you get your share of the thrills, be sure you get the STERLING YAK-9! All parts are die-cut or shaped — only the finest materials are used — and decal insignia are included in this outstanding kit! To be sure your YAK is by STERLING, look for Matt Kania's picture on the box!

See These Other Sterling Models	
Monocoupe	$4.95
Howard Pete	5.95
Mr. Mulligan	4.95
The Waco	5.95
Polish Fighter	5.95
SE 5	5.95
Ryan S-T	5.95
The Maverick	1.00
The Hawk	1.50
The Ringmaster	$2.95
F-51 Mustang	2.95
SCALE POWER BOATS	
Richardson	$5.95
Higgins	4.95
Buccaneer	7.95
Sea Maid "20"	2.95
Resorter "20"	3.25

TUBING
Sterline and Sterl-X

Sterling models
1530-34 N. Hancock St. Philadelphia 22, Pa.

Write for your Copies*

The World's Greatest
Hobbycraft Show
in National's New Check List
Now . . . 92 Pages . . . With More Than 10,000 Items at Your Finger Tips

* On Your Letterhead Please.

NEW HOBBYCRAFT CHECK LIST
TOY AND TRAIN CATALOG
RAILROAD PARTS CATALOG
ENGINE PARTS CATALOG

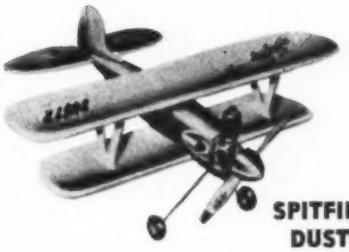
national MODEL DISTRIBUTORS

We believe that no greater education can be given a child, regardless of the age, than the development of interest in a hobby. We know from personal experience that no closer relationship can be developed between a child and parent than a mutual interest in entertainment and pleasure derived from a pastime attractive to both. Model aviation and marine hobbies become the keen interest and desire of the youngsters at one time or another in their life, and generally this spark is killed by the involved engineering problems necessary to assemble and build the general run of aviation and marine products. To hold the youngster's interest and to make it possible for him to have and assemble the finest in finished products without engineering knowledge, SPITFIRE airplanes and boats are manufactured either completely assembled and ready to go or ready for assembly without cutting, fitting, or advanced knowledge. We hope we have achieved our aim and purpose in giving you the finest planes, boats, and engines that is possible, so that you will fully enjoy the pleasure and entertainment derived from their use.

BIGGER, BETTER, MORE EXCITING THAN EVER "Spitfire" THE

SPITFIRE SPIT-CRAFT

Ready to Go - - - $11.95
in less than one hour



SPITFIRE DUST'R

Ready to Fly - - - $7.95
in less than one hour

SPITFIRE F-65-2

Ready to Fly - - - $8.95
in less than one hour

THE GREATEST NAME IN HOBBIES

SPITFIRE SKIM'R

Ready to Go - - - $8.95
in less than one hour

Visit your local hobby dealer and ask him to show you his complete line of quality SPITFIRE PRODUCTS.

MEL ANDERSON
Manufacturing Co.
1547 W. 16th St., Long Beach 13, Calif.

Consolidated

KITS Famous For:

1. Easy Building!
2. Guaranteed Flight!
3. Low Price!

435 Sq. inch wing area

24" Fuselage

40" Wing span

$5.95

ALIGNS ITSELF As You Build It!

ALL AROUND FLYER with ADVANCED STABILITY DESIGN! — for stunt or sport flight. Complete kit, less engine, includes: die-cut sides, top, bottom, plywood formers, flaps, wing-ribs, side stiffeners. Shaped rudder, stab, elevator, cockpit, turtle deck & landing gear. "CAN'T-GO-WRONG" super-detailed plans & assembly instructions. Kit practically builds itself!

STARLET Scaled-down version of Guided Star featuring the very same advanced stability design, "can't-go-wrong" assembly, perfect finish and spectacular performance. 150 sq. in. wing area, 14¼" fuselage, 24" span, 21½ self aligning slots. Engine not included. $2.75

159.23 M.P.H.

hell razor MAGNESIUM ALLOY BOTTOM

COOLER RUNNING! LONGER LASTING! Metal bottom machine-bolted to engine. Metal to metal — 1st time!

CLASS	PRICE CASTING		½A MODEL 87 M.P.H.
"A"	$5.95	$2.75	Kit, less engine: carved & hollowed top & fairing block; carved mahogany fuselage bottom; 9" span. $2.00
"B"	$6.50	$2.75	
"C" & "D"	$6.95	$2.95	

COMING SOON!

4 NEW ½A Flying Scale Models

- Focke Wulf
- Hawker Typhoon
- Japanese Zero
- Spitfire

AT DEALERS! If none near you, order direct enclosing remittance. No C.O.D. service.

Consolidated

Dept. MA-852

3087 Third Avenue, New York 56, N. Y.

BALSA WOOD

Top Grade Precision Cut Model Aircraft Stock. Eighty stock sizes.

Discount to dealers and kit manufacturers.

Write for free Price List

SIG MANUFACTURING CO.

Montezuma, Iowa

to put in the drag and anti-drag wires between the struts first. These are secured with a clove hitch; put a drop of dope on the knot to hold it. Landing and flying wires are next. Start by cementing a length of thread to the wing root ribs. When dry, slip the wings on the tab supports, and then tie threads to the struts, alternate top and bottom. Do not pull threads too tight because it will pull the wing panels out of line. Use a long thin darning needle to run thread through the fabric of balsa surfaces as necessary. When the rigging job is complete, apply a coat of fuel proofer to the whole structure; a double coat was put on the engine space and the bottom of the fuselage. A spray gun was found to give the best finish, but a good wide brush used rapidly gives a good job.

Pilots are carved from balsa blocks and hollowed inside for lightness. The method described by the Cleveland Model Airplane Company on all of their plans was used. Pilots are given one light coat of dope to seal the wood, and painted with water colors to give a lifelike appearance. Give them a coat of fuel proofer, and when dry, cement them in the cockpits.

The motor has one degree downthrust and one degree right-thrust. The downthrust helps to make the gliding angle better and the right-thrust helps to counteract the torque.

The model was tested in a field of tall grass for the best glide, and when a nice even glide was obtained, was flown with power. Make the first flight of short motor run, and with the mixture very rich to cut down power and rpm. As adjustments were made to correct the flight characteristics, the motor gradually leaned out until it was operating under full power. Do not hurry this process because it often leads to a bad crackup.

Tips from a Champ

(*Continued from page 20*)

wrecks might occur prior to the meet. After a few days of calm weather adjusting, try the plane out in a medium wind and take out stalls which might occur. Keep working on adjustments until they are perfect. When the day of the contest arrives, you should only need a short test flight to see if it still flies. The week before a big contest you should be finished with building so you can spend all your time adjusting your models.

At the contest itself you should keep a few important factors in mind, for on them may hinge the success or failure of your entries. First of all, be sure to arrange to have with you a dependable helper to assist you in pre-flight adjustments. He will be of much help to you in starting your motor, winding your rubber, and especially in chasing the model. Always be willing to give assistance to another modeler if he is in need of it. You never know when you yourself may need similar aid. Good sportsmanship is a trait which you will always be admired for.

When your craft is in the air on an official flight, your sole job is to stay with your timer. Never leave his side at any time, or allow him to take his eyes off your plane for an instant. Stay with him while your partner or helper chases the plane. Prevent others from distracting his attention from your ship. Remember, one side glance when the model is high in the air may mean the end, for he may never again catch sight of it, and valuable time will be lost. A few seconds can very often be the margin of winning or not, so you cannot afford to lose any if it can possibly be helped.

Perhaps you will find, when you are test flying, that sometimes the model will be caught in rising air currents that carry it high in the air, adding much time to its flight. You can learn to find these rising air currents, or "thermals" as we call them, and fly your ship in them. This will, of course, add greatly to your chances of winning. Finding thermals really isn't as difficult as one might suppose. If you look around the contest area and see any large, puffy white clouds, you can be pretty sure that thermals will be found underneath.

Wait until these clouds are overhead, and you will notice, with a little practice, that a relative calm comes over the air, followed

(*Continued on page 42*)

R/C NEWS

NO MORE SEQUENCE WORRY when you use the "E-Z" AUTOMATIC RADIO CONTROL SWITCH

Just disconnect your old push button and hook these two wires to the two terminals on the "E-Z"

AUTOMATIC R/C SWITCH BOX—THAT'S ALL!

ONE YEAR GUARANTEE

Pat. Pend.

4⅜"L x 1½"D x 3"W

FEATURING:—

- No sequence to remember
- Successive turns at your command
- Turn control knob right—you will get right rudder
  Turn control knob left—you will get left rudder
- No electric motors—gears—springs or batteries
- No changes to make on the escapement
- Built in emergency push button
- Light in weight, 6 oz. Complete

MODEL 102—for 2 arm self-neutralizing escapements
MODEL 104—for 4 arm escapements—($1.00) extra
ONLY $8.50 (add 25c for Postage & Handling)

DON'T DELAY—NATION-WIDE RESPONSE SENSATIONAL

Send check or money order to

OSBORN HOBBY ASSOCIATES DEP'T M3

586 Osborn Street Brooklyn 12, New York

Dealer Inquiries Invited

NO OTHER MODEL ON EARTH will give you the detail of a Dyna-Mo Solid!

Jam-packed with metal castings, every little detail visible in the actual airplane — every single item that can be reproduced — is given to you.

P-47 THUNDERBOLT . . . $2.95

British Spitfire	$2.75	P-51 Mustang	$2.75
FW-190 Focke Wulf	2.75	F6F Hellcat	2.75
P-40 Warhawk	2.75	F8F Bearcat	2.75
F4U Corsair	2.75	P-38 Lightning	3.50
ME-109 Messerschmitt	$2.75		

DYNA-MODEL'S NEW JETS — READY JANUARY 1st

F-84 Thunderjet	$2.75	F9F Panther	$2.75
MiG-15	2.75	F-80 Shooting Star	2.75
F-86 Sabrejet	$2.75		

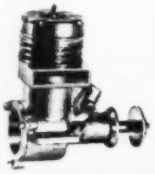
DYNA-MODEL PRODUCTS COMPANY

76 SOUTH STREET, OYSTER BAY, NEW YORK

FOX 59

HP — 1+, WT — 10½ oz.

WORLD'S FINEST FOR STUNT AND FREE FLIGHT



FOX 35

HP — ½+, WT — 6 oz.

FIRST — 1950 AND 1951 NATIONALS

FOX for . . .

- EASIER STARTING
- SMOOTHER, STEADIER RUNNING
- MORE POWER — LESS WEIGHT

ARNOLD & FOX ENGINEERING CO.

7401 VARNA AVE., NORTH HOLLYWOOD, CALIF.

It's America's *Champion* stunt plane!

GUILLOW'S Trixter BARNSTORMER

Now is the time to enjoy the thrill of U-Control stunt flying and the Barnstormer, a two out of two times National Stunt Champion, is your best bet for top in-the-air performance.

Right now your dealer has one of these fine kits on his shelf, similar in every way to the one that swept top honors in the "world series" for stunt models. Why not stop around and look it over? There's no obligation and you'll surely be impressed by its quality and prefabrication.

SPECIFICATIONS
Wing Span ..... 47 in.
Wing area ..... 470 sq. in.
Engine ..... .23 to .35 disp.

HAIL THE CHAMP!

$5.95

1951 NATIONALS
Open event winner.....382 points
Senior event winner....389 points
Awarded Jim Walker Trophy

1950 NATIONALS
Open event winner.....418 points
Senior event winner....390½ points
Awarded Jim Walker Trophy

designed by
Lou Andrews
1950 NATIONAL STUNT CHAMPION

4 other fine *Trixter* stunt models

$2.95

$3.50

Baby BARNSTORMER

Outstanding class ½ A Stunt Ship. Completely prefabricated kit. A junior version of champion Barnstormer. 23½" wing span. For engines from .035 to .049 cu. in. displacement.

PROFILE TRAINER

A basic trainer with readi-shaped balsa wing and ready to assemble fuselage. Ideal stunt ship for beginners. 32" wing span. For engines from .19 to .29 cu. in. displacement.

PROFILES A-B and B-C

Class A-B stunt model. 32" wing span; for engines from .19 to .45 cu. in. disp. $2.50.

Class B-C model. 38" wing span; for engines from .29 to .60 disp. $3.50.

DIE-CUT BALSA

SHELF MODEL KITS

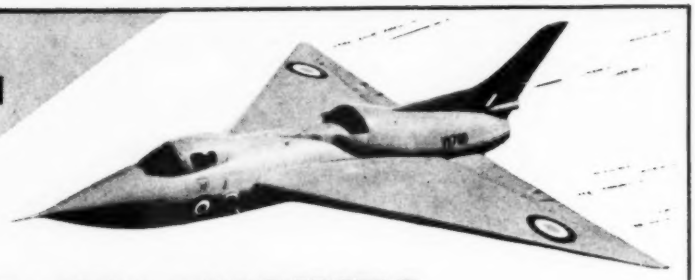
Lockheed F-80 Shooting Star
McDonnell F2H-1 Banshee
Republic F-84 Thunderjet
No. Am. F-86 Sabre
Russian Mig 15
Vought F7U Cutlass
No. Am. B-45 Tornado
Boeing B-47 Stratojet
Convair B-36 Bomber
Fairchild C-119 Packet
Martin B-57A Canberra
Sikorsky H-5 Transport
No. Am. T-28 Trainer
Northrop P-89 Scorpion
Grumman F9F Panther
Douglas AD-1 Skyraider
No. Am. P-51 Mustang
Vought F4U-1 Corsair
Republic P-47 Thunderbolt
Curtiss P-40 Warhawk
Lockheed P-38 Lightning
Lockheed C-69 Constellation
Boeing B-29 Superfortress

25¢ EACH

SEE YOUR LOCAL DEALER FOR GUILLOW KITS - IF NOT AVAILABLE, SEND DIRECT TO FACTORY, ADDING 15¢ TO ALL MAIL ORDERS

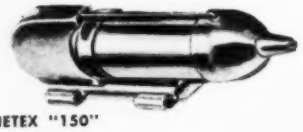
PAUL K. GUILLOW
WAKEFIELD, MASS.

TO MODEL MODERN AIRCRAFT, YOU MUST HAVE MODERN POWER

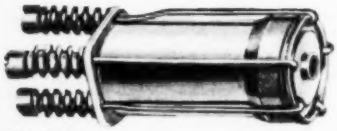


JETEX JET ENGINES

JETEX "50"



JETEX "150"



JETEX "350"

GIVE YOU THESE FEATURES

- TORQUE FREE THRUST OF TRUE REACTION MOTOR
- LIGHT WEIGHT, PRECISION MADE ALUMINUM PARTS
- LOW COST, SIMPLE, EFFICIENT DESIGN
- NO MOVING PARTS
- SAFE, CLEAN, SCIENTIFIC SOLID FUEL

SPECIFICATIONS	jetex jet engines		
model	50	150	350
ENGINE WEIGHT	2 OZ	7.3 OZ	2.5 OZ
FUEL WEIGHT (min)	2 OZ	2.7 OZ	4 OZ
TOTAL WEIGHT	4 OZ	1 00 OZ	2 9 OZ
① THRUST (max)	6 OZ	1 75 OZ	4 0 OZ
DURATION — one charge	12 SEC	18 SEC	12 SEC
DURATION — two charges	—	—	24 SEC
DURATION three charges	—	—	36 SEC
TORQUE	NONE	NONE	NONE
EXHAUST VELOCITY	1200 FS	1400 FS	1400 FS
OVERALL LENGTH	1 5/8"	3 1/2"	3 3/4"
MAXIMUM DIAMETER	11/16"	1"	1 3/8"
EFF WINGSPAN	12-20"	18-36"	32-54
② ENGINE PRICE	$1 95	$4 95	$8 95
③ FUEL PRICE	$ 65	$ 95	$1 00

NOTE 1 THRUST OF "150" WITH AUGMENTER TUBE: 2.25 OZ
NOTE 2 INCLUDES ENGINE, ACCESSORIES, MOUNTING CLIP INSTRUCTIONS, FUEL
NOTE 3 INCLUDES 10 FUEL CHARGES, IGNITERS, RETAINER SCREEN, SEALING WASHERS

See your Dealer or write: AMERICAN TELASCO Ltd., Huntington, N. Y.

Family of Famous Folks
HONOR ROLL
DALE KIRN
HOWARD THOMBS
HAROLD DE BOLT
NORVAL HALE
DON STILL

Aero Gloss

Can help YOU join this Famous Family!

Aero Gloss finished planes have been consistent winners year after year in National competitions where *appearance* is as *important* as performance.

An Aero Gloss finished plane is hot fuel proof throughout — from cement to final coat — no fear of fuel weakened joints

Aero Gloss C-77 Cement-Tube 25c
Aero Gloss Plastic Balsa-Tube 30c
Aero Gloss Model Airplane Dope-20c, 60c, $1.00

AT ALL DEALERS

PACTRA CHEMICAL COMPANY
1213 No. Highland Ave. Los Angeles 38, Calif.

by a slight breeze. This breeze is your cue; it is time to launch your ship. Try this method—and you will be sure to notice results.

If you are going to chase a model in a car, never attempt to do it alone. You cannot drive and keep your eyes on the plane also. Have some one to go along with you and, while he is constantly watching your plane, he can be directing you whether to turn left or right depending on the flight pattern of the model. A helpful method in chasing a plane is to line it up with a marker on the horizon, namely a house or a large tree, or to situate the craft between two such points. Then, if perchance you did take your eyes off the plane momentarily, you would lose no time regaining sight of it. These precautions are necessarily of utmost importance for, in losing a ship, you lose not only a chance of winning and many hours of diligent building and adjusting, but also, as in the case of gas jobs, a costly motor as well.

One of the greatest assets I have found to successful modeling, is the Model Airplane Club. In such clubs the young modeler finds others interested in the same hobby as he. He can talk over things with fellow club members who will always prove to be a source of helpful information. Make no mistake in this matter—you DO need help to become a winning contestant. Model clubs provide information on future model events which might otherwise be overlooked by non-members, leaving them unprepared for the meets. Clubs make possible a close contact with other model builders like yourself, whom you will find can be of great assistance when you are in doubt about certain problems that will arise in your modeling career. For instance, I found that my first models often "wound in." It wasn't until after associating with other modelers, particularly members of the club which I was later to join, that it was pointed out to me the errors in construction and adjustment that caused this defect. I could enumerate countless other instances wherein club members have helped me, but it seems that the value of model clubs to the contest winning aspirant needs no other proof. Teamwork in building, in trading plans, ideas, techniques and supplies—teamwork in diagnosis and adjustment —teamwork is the necessary ingredient of a victorious club, as well as of a contest winning individual.

For the second consecutive year the club to which I belong, the *Detroit Balsa Bugs*, won the team championship at the Nationals. As for myself, I entered in as many events as I could. I flew indoor stick and cabin (150 sq. in.) and indoor hand-launch glider (65 sq. in.). On these gliders I used a long moment arm to keep it from losing the full efficiency of its climb. A "floater" was used on the towline glider, with a detachable rudder that could be released at the height of the tow, having kept the model in a straight course until it was directly overhead. I also flew in free flight gas and rubber, and also PAA Load.

Once you become really interested in this hobby, you will find many capable model enthusiasts ready to give you strong competition. Unless you keep up to date on modeling news, you can never hope to keep ahead of them. If you belong to a club, discuss new things among members, and work them out to your benefit. Read the latest model airplane magazines to help keep you up to date on improvements and ideas.

To keep up with the best, you should have the hottest motor on the market. The extra added cost, if any, will be negligible so far as performance is concerned. If you make it a point to always have the best in your ships, you will have a better chance of winning than the fellow who indiscriminately chooses his equipment. Try different fuels before you finally select any given one. Be sure it has the good performing qualities of fast-starting and the versatility for hot or cold weather. Experiment with fuel proofers until you find one that will not crack, peel, or tend to dissolve from hot fuels.

If you follow all these hints and still fail to taste modeling victory, by all means do not be discouraged—keep trying, for quite possibly, your next meet may be "the one" for you.

R. C. Actuators

(Continued from page 26)

The circuit of a current saving escapement is shown in Figure 12. This can be adapted to any escapement on the market or to any one the modeler may prefer to build. If space permits on a homemade unit, two coils may be used. Otherwise, the single coil must be wound with No. 30 and No. 34 wire simultaneously and connected in series so that the flux lines are additive and not bucking each other. Figure 13 illustrates this and should be followed when designing dual winding single coils. With reference to Figure 12, the points are situated so that they are closed when the escapement is at neutral, thus shorting out the high resistance winding. When current is supplied to the low resistance winding and the armature picks up, this point moves and allows the high resistance to be put in series with the low resistance, thus decreasing the current consumed.

The proper operation of an escapement depends on the adjustment. Figure 14 shows the approximate clearances for proper operation. The spring tension on the armature pawl will vary with various types of escapements but should be tightened only to the point where the magnet coil will attract the armature reliably and with a snappy action. A piece of cellophane should be placed between the armature and the tip of the magnet coil. If these two surfaces are allowed to come in direct flat contact with one another, any residual magnetism induced in the two pieces may seal them together strongly enough to make it difficult for the return spring to pull back the armature.

Common causes of escapement skipping are as follows: (1) Sloppiness in the escapement arm shaft and the armature pawl pivot shaft; (2) Incorrect clearance at the latching points; (3) Incorrect angles on the ends of the escapement arm and on the stops of the armature pawl; (4) Rubber band wound too tightly, or too heavy rubber used; (5) Indirect causes from poor connections or bad relay contacts, or chattering relay contacts.

Three to four and a half volts should be used on the magnet coil and a single loop of 1/8" rubber 14" long, wound to a full row of knots should be sufficient for normal use.

Some builders may have a preference for placing the escapement either in the tail or in the cabin. The author prefers placing it in the cabin because of the shorter electrical connections involved and ease of adjustment, if needed. Balancing the model may also be made easier. Due to the relatively low resistance of the coils, a resistance of only one ohm in the connecting wires may lower the effectiveness of the magnet by 20 per cent.

One of the most unique actuators on the market is the Rudevator, capable of giving rudder, elevator and engine control; it operates on three to four and half volts.

Another type of actuator, the model development of which was pioneered by George Trammel, is the magnetic servo type. Plans for building various designs of this type have been presented in the June 1947 issue of M.A.N. The principle of this actuator, basically, is that for a given flux density as determined by the amount of voltage applied, a given movement is obtained. This lends itself to a proportional or modulated control which is what experienced radio control builders should strive for.

This method eliminates the sequencing that is necessary with an escapement, and allows the control to be positioned at any spot between neutral and full left or right.

John Worth of Hampton, Virginia, has developed several proportional type controls using both electric motors and a pulsed magnetic armature. Mr. Worth's designs lend themselves very well to a small Class B model or even to a Class A ship. One of the earliest applications of the electric motor system was used by Chester Lanzo in winning the Nationals back in the middle thirties in the radio control event, and is shown in Figure 15. Upon receipt of a signal, the electric motor was energized and remained running as long as the signal was held, driving the rudder continuously from left to right, etc. Since the plane was slow-flying, the key was depressed until the rudder turned it to the necessary direction, then released.

The End

TOP FLITE MODELS INC.

Want the *REAL* Dope On Props?

Read What 1951 National Winners Used . . .

More TOP FLITES and POWER PROPS than all other makes combined!

Michael Cook
Glendale, Ohio
PAA Load, Cl. AB
Ohlsson 29
11-4 Top Flite

Juel Clevenger
Kansas City, Mo.
Control Line-Flying
Scale-Sr. Atwood 49
10-8 Top Flite

Bob Ottoman
Medford, Oregon
Open Free Flight
Gas Cl.C, Torp 32
10-6 Top Flite

Jimmy McCroskey
Iredel, Texas
Control Line-Flying
Scale Jr. KNB-32
9-6 Top Flite

Bill Lofland
Abilene, Texas
Free Flight Gas
ROW Jr., Veco 29
9½-6 Power Prop

Clifford Schaible
Roselle Pk., N. J.
Navy Radio Contral
Bomb. Open. McCoy 19
9-6 Top Flite

Don Murray
West Point, Ga.
Free Flight Gas
Cl. C Sr., Triumph 49
11-6 Top Flite

Ernie Shailor
Detroit, Mich.
Free Flight Gas
Cl. B, Open, Forster 29
10-3½ Top Flite

Curtis Franke
San Antonio, Texas
Free Flight Gas
Cl. C, Jr., Torp 32
11-6 Top Flite

Tommy Davis
Atlanta, Ga.
Control Line
Spd. Cl.A, Jr. McCoy 19
7-9 Power Prop.

Don Tune
Los Angeles, Cal.
Cl. AA Junior, Free Fl.
Torp. .049
6-4 Power Prop

Lou J. Andrews
Norwood, Mass.
Open Stunt
Fox 35
10-6 Top Flite

Dan Ferguson Jr.
Newtonville Mass.
Senior Stunt
Fox 35
10-6 Top Flite

Jack McComb
Columbia, Mo.
Sr. Free Flight
Gas Cl.AA, Wasp .049
6-4 Top Flite

Dick Everett
San Diego, Calif.
Open Free Flight
Gas Cl.AA, Torp .049
6-3 Top Flite

Bob Lutker
Ft. Worth, Texas
Open-Team Racing
K&B 29
9-9 Power Prop

Edward R. Mate
Chicago, Illinois
Free Flight Gas
ROW Sr. OK Cub 09
7-4 Top Flite

Chief J. K. Abbott
Corpus Christi, Texas
Control Line-Flying
Scale-Open, McCoy 49
10-6 Top Flite

Herb Kothe
Grand Prairie, Texas
PAA-Load, Open-AB
Torp 29
11-4 Top Flite

Harris Grimes
Atlanta, Georgia
Junior Stunt
Veco 29
10-6 Top Flite

TOP FLITE Models Inc., 2635-45 S. Wabash Avenue, Chicago 16, Illinois

F & B's NEW COMBAT SKY BOX

HOTTEST JOB OUT!!

$2.95

(By mail add 25c)

COMBAT SKY BOX — full stunt ship, built-up fuselage, conventional motor mount. CLASS A & B, wing span 36 ins., chord 6 inches, 210 sq. inches wing area $2.95

P40F CURTISS WARHAWK—Flying scale for team racing, pre-fab, die-cut, CLASS B-C $5.95

VIXEN—Full stunt for .030 to .065 engines. Wing area 126 sq. ins.; span 21¼ in. Class ½A $1.95

F&B HINGES—Invisible, everlasting, they never pull loose. Per set ..... 30¢

F-B MODEL AIRCRAFT -- 3240 LARIMER -- DENVER 5, COLO.

R/C NEWS

27.255 VS. 465 CITIZEN-SHIP for R/C Flying.

by
Vern C. MacNabb

They are both good and both needed, as RC Flying gets more and more popular. They don't interfere and two modelers can fly simultaneously.
We believe we have an edge in our 465 **CITIZEN-SHIP** Radio Control. The following advantages exist over and above any 27.255 Receiver we have seen or tested including our own—we will be out with it soon.

1. **CITIZEN-SHIP** factory tuned and sealed to fly "out of the box."
2. No antenna required on **CITIZEN-SHIP.**
3. Low plate current allowing use of hearing aid "B" batteries.
4. Plate current INCREASES with signal on **CITIZEN-SHIP.**
5. Sensitivity not dependent on "B" voltage or antenna length.
6. No sensitivity adjustment before each flight.
7. **CITIZEN-SHIP** FAILS SAFE.

We want to explain No. 7. In all 27.255 receivers to date, the plate current DECREASES to operate the relay and escapement. If anything fails in the ship, a connection, loose battery, tube failure, etc., the ship is locked into a turn and will spiral in a crash! We know!!
Fly safely. Use **CITIZEN-SHIP** 465 megacycle RC Control.

RECEIVER Popularity of Citizen-Ship increased production. Was $39.75 NOW $29.95

TRANSMITTER completely self contained; factory adjusted, ready to use, less bat'ry $39.75

Citizen-Ship SN escapement	$ 9.95
Good Bros. 4 position escapement	13.50
Citizen-Ship Test Meter	19.95
Bell Crank and Rudder Horn	.75

VERNON C. MacNABB CO.
909 Westfield Blvd., Indianapolis 20, Ind.

RAILROAD PHOTO ALBUMS

The most unusual series of albums ever offered to collectors.

Here's your chance to own the same authentic railroad photos that are in some of America's most famous collections.

Compiled by Harry S. Albrecht, each of these albums consists of 22 clear, sharp pictures. And each is devoted entirely to a separate classification of locos.

For example, Album 1 pictures the 4-4-0 American Type, Album 2 the 2-8-0 Consolidation Type and Album 3 the 0-6-0 Type.

You'll want these three timeless albums—plus all the ones that will follow. Pick them up at your favorite hobby shop . . .

35c Each

Or send $4 for a 12 issue subscription

FOX-SHULMAN PUBLICATIONS, INC.
Dept. MA
30 East 29 Street
New York 16, N. Y.

We Test the Clipper Jr.

(*Continued from page 18*)

placing the ribs and, if they didn't fit, cement was used to fill the gaps rather than cutting and trimming for a good fit. However these parts were pulled out, remade, and fitted again. It was impressed on the boys that in any model each piece depends on the other for strength and alignment, and that a warped surface can throw the whole model out of line. Once they grasped this fundamental they slowed down and the workmanship improved.

The tendency to hurry appeared too in sanding the ribs and trailing edges of the *Clipper*. Here again the boys had to be slowed down and shown how to sand slowly and carefully so that a trailing edge would be smooth from root to tip rather than a series of humps and bumps with sanding marks between. All of these fundamentals come to any builder in time and with practice, but being shown how to do it correctly results in a pretty fair model after the first few tries rather than over a period of many months.

Helping the boys with the *Clipper* was an enjoyable experience as well as an interesting one. Youngsters are eager to learn and a little help, understanding and patience, will encourage them to build almost anything. A boy of 12 can build the *Clipper* with little difficulty and he can get some pretty good flights too. The model will take off, climb 50 to 75 feet, cruise and glide down for a landing. A youngster isn't expecting contest performance. He wants a model he can fly at the school grounds and hang up in his room. The *Clipper* fills this need admirably.

The *Clipper* kit for the price of $1.00 is excellent. The material in the three kits purchased was checked and only one was found to contain any undesirable material. This was a piece of rock-hard 1/8" printed sheet. This was divided among the two boys and, while it resulted in sore fingers cutting the wood, it was good practice for them because in larger models some structure requires rock-hard balsa or hardwood.

The printed wood generally was good. The lines were clear and sharp and the wood was firm but soft enough to be cut with ease. The strip wood was clean and firm for the longerons and spars. Covering material was not as good as Jap tissue but it was brightly colored and stiff enough so that one coat of dope makes it quite rugged.

In the hardware a preformed wire landing gear is included and it really fits. No other bending is necessary. The machine cut prop is adequate for sport flying but for real performance it can be widened by adding soft 1/8" x 1/4" strips on each edge and then trimming and sanding.

The plans are clear and simple. Step by step instructions are given for the construction of the fuselage, and little details such as landing gear attachment, wing mount, and windshield outline are shown.

One of the neatest tricks in the model is the construction of the wings' trailing edge. A curved trailing edge is usually difficult to build and subject to warping. In the *Clipper* the trailing edge is constructed by pinning a strip of 1/8" sq. along the inner trailing edge outline. Two more strips are then pinned and cemented to the first, giving an 1/8" x 3/8" trailing edge that is rigid and warp free.

Two suggestions for improving the *Clipper* and all low priced flying model kits in general are offered. One is to incorporate two spars of 1/16" sq. on the upper camber of the wing from the main spar to the leading edge. These two small spars would add considerable strength and the covering would lay with less sag between the ribs.

The other suggestion (and this is generally true of flying model kits), is to give more information on center of gravity position and trimming the model for flying. A youngster without help is lost when it comes to flying a model. Step by step instructions on how to obtain proper glide, weighing the nose for C. G. position, the use of downthrust and rudder trim are always helpful. Small illustrations, cartoon style, would be a boon to builders of free flight models; this is something not yet done in the industry.

For the older builder, the *Clipper* offers

(*Continued on page 46*)

MR. DEALER —
New, Hot items NOW in Stock. Order Today!

WRITE FOR YOUR CATALOG. REPLIES WILL BE MADE TO INQUIRIES ON OFFICIAL STATIONERY ONLY

MOD KRAFF CO
840 Union St., New Orleans 12, La.

Super Detail
World War I
½ INCH SCALE FLYING MODELS
DESIGNED FOR CAMPUS CO2 OR RUBBER POWER

SOPWITH CAMEL
SPAN 14" $1.00

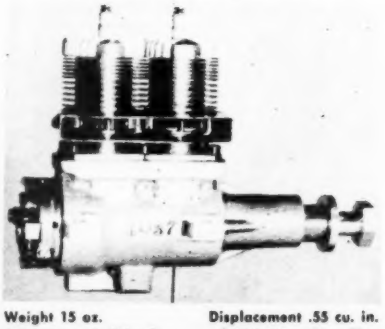
OTHERS AVAILABLE IN THIS SERIES

S.E.5.A.	SPAN 13.5 16" $1.00	ASK YOUR DEALER FIRST
FOKKER DR.I	SPAN 11.3.4" $1.00	

If Ordered Direct Please Add 10c Postage

CARTER CRAFT MODELS
16 MONTICELLO ARCADE NORFOLK 10, VIRGINIA

PAL "55"
FOR SMOOTHNESS AND POWER



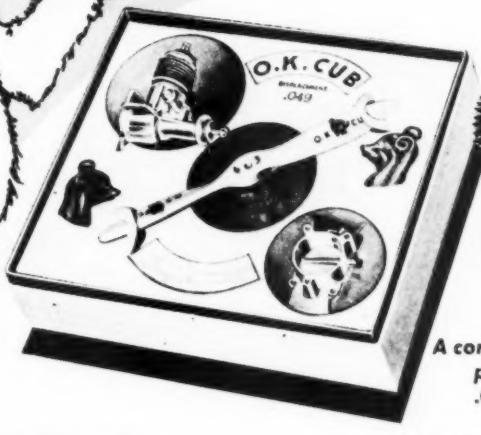
Weight 15 oz.
$62.50 Ignition & Glow Plug

Displacement .55 cu. in.
$49.50 Glow Plug Only

DEALER INQUIRIES INVITED

PAL ENGINEERING LTD.
53 16TH AVE. S.W., CEDAR RAPIDS, IOWA

SAY OK for... TOPS in VALUE and TOPS in PERFORMANCE



OK CUB .049 COMBINATION PACKAGE

A complete power plant with the .049 Cub only **$5.75**

Buy an OK Cub Combination Package in any of four displacements and enjoy tops in power, performance and value. Here is the complete power plant for your plane at a price. Each package contains assembled engine, propeller, and fuel tank.

Cub .039	$4.95
Cub .049	5.75
Cub .074	6.75
Cub .099	7.75

Get Faster Starts, Better Power-Fuel Ratio. Maximum Engine Protection with

OK GLOW FUEL

Compounded especially for OK engines and engines of comparable compression ratios, OK Glow Fuel has a high methanol base heavily fortified with nitrates. Doesn't corrode, gum or varnish. Ideal for breaking in glow-plug engines. Has proved its championship qualities over a wide range of climatic conditions.

FULL PINT 85c

Easy to Start, Hard to Burn Out

OK GLOW PLUGS

Their superior platinum glow element assures quicker starting, faster acceleration, higher speeds. Outlasts ordinary plug. In two sizes, ¼-32 long and ¼-32 short for all OK and other engines **59c**

Greatest power output of any ½ A class engine

"OK" .049 Cub $5.25

Outstanding for stunt and speed flights **"OK" .074 Cub $5.95**

Powerful Class A Performance **"OK" .099 Cub $6.95**

"OK" .049 POWER KIT $4.95

Assemble it yourself and save $1.20 on the price. More — you learn your engine from the inside out . . . know its precision fits . . . see what makes it run.

SEE YOUR DEALER...OR WRITE US DIRECT

HERKIMER TOOL & MODEL WORKS

88 Harter Street Herkimer, N. Y.

Manufacturers of Famous "OK" CO_2 • "OK" Bantam • "OK" Hothead • "OK" Mohawk Chief • "OK" Super 60 • "OK" Twin

CLEVELAND

Tops in Jets!

VOUGHT CUTLASS (ABOVE) — OTHER "SIMPLEX" KITS:

EACH $1

- LOCKHEED F-90
- McDONNELL BANSHEE
- RUSSIAN MIG-15
- THE PIPER CUB
- VOUGHT CORSAIR

—and—

Tops in Scale

1" SCALE

BOEING P-26A (ABOVE) $6.95

GT. LAKES TRAINER.... $5.95

—and—

Tops in Prefab

EACH **59c**

THE GREAT "QUICKY" SETS: LUSC. SEDAN (ABOVE) • F-86 SABRE • BONANZA • SILVAIRE • PIPER CUB • AERONCA

WHEN ORDERING BY MAIL (If your dealer is out of stock). Minimum order is $2. Include 35c pack-post to all orders up to $3.50 — over $3.50 add 10%. No COD's. Foreign customers add 10% in addition to pack-post charges. Ohioans add 3% Sales Tax. SEND 5c FOR LATEST AIRPLANE CIRCULAR.

CLEVELAND MODEL & SUPPLY CO.
4508H1 Lorain Ave., Cleveland 2, Ohio

intriguing possibilities. As a rubber-powered model it can be equipped with a good folding prop, and the performance goes up considerably. The writer lost his *Clipper* out of sight after fitting a one-blade folder. Equally effective, though more subject to damage, is a good free-wheeling prop.

For sport flying, a lightweight pair of floats may be added to adapt the model to R. O. W. Any small pond is an ideal place for flying a *Clipper* equipped with twin floats.

The AA enthusiast will find that the *Clipper*, equipped with an *Infant* engine, makes an ideal sport contest model. The engine should be mounted on a thin plywood firewall just ahead of the windshield. A small cowl made of soft balsa blocks will smooth off the blunted lines of the nose. Keep the C. G. at 40—50 percent of the wing chord. The *Clipper* is so light that it may be color doped when using an *Infant* engine. Just pin down the flying surfaces when they are drying to prevent warps.

The *Clipper* is basically a beginner's model, but it is adaptable to so many uses it is worthy of any builder. It is a model for fun unlimited.

Scrap Box

(*Continued on page* 4)

breaking points per line diameter: .006 dia—10 lbs., .008 dia—20 lbs., .010 dia—40 lbs., .012 dia—50 lbs., .014 dia—60 lbs., .016 dia—75 lbs. These figures are for the single strand type. In the stainless steel flex lines, .015—50 lbs., .018—70 lbs., .022—90 lbs. Keep a lookout for rust spots, kinks, or frayed wires, or any other factor that may make them unsafe. Always give your lines a pull test before flying your model. All it takes is a helper to hold the ship while you pull the lines.

• • •

Mom and Pop Robbers were out in time (5:00 a.m.) to clear the jackrabbits out of the field for the Northern California Wakefield elimination. Everything was wet but no time lost getting under way. A quick draw for flight positions and the first round started at 5:50 a.m. Fifty minutes after starting, with 14 official flights and ten delays posted, the first round ended at 6:40 a.m. The contest ended at 7:49 a.m., just one hour and 59 min. after Joe Foster was called to make the initial flight of the day. Total time for all official flights was 2 hr. 2 min. 16.4 seconds. Plenty of good flights and also some heartbreakers. Larry Parsons' job blew up with one too many winds; John Hope's *Canard* just couldn't quite ROG but flew swell when hand-launched; a single-strut sidemounted landing gear missed the stip pin when it retracted and stood straight up like a mast on John Collin's only flight; and Manny Andrade had tough luck when his prop sheared off against his elbow on his last flight. Got a kick out of the old timers like Carl Rambo, Harvey Milts, and Charlie Pottol running out to the take-off area when called, completely forgetting to weigh in or pick up a timer. Joe Bilgri, John Lenderman, and Hank Cole turned in totals of 808.0, 719.2, and 693.3 respectively.

• • •

At Sepulveda Basin, Frank "Unusual" Cummings brought out his latest effort. A twin fuselage job carrying 14 strands of 3/16 rubber in each fuse put him in the money. Enjoyed the twin single-bladed counterbalanced props. Ship weight 3-1/5 oz. without rubber. Approximate span, 46". Frank didn't wind to capacity as a place was all he wanted at the time.

Dick Baxter turned in 4:12.5, 3:01.2, and 5:00 respectively for high time. Baxter used a gear reduction set-up in his job. Carried 24 strands of 1/4" rubber and a 14" x 25" pitch prop.

• • •

LCDR "Carrier Deck" Howard Eddy prepared for M.A.N. a plan for placing a carrier deck at practically any club flying field. Main idea is to bring the event within the reach of a larger number of participants who might never have a shot at the "Small Fry." Cost? A ball of strong cord, a bit of 1/8 rubber, and a few other minor gadgets. Arresting "wires" might cost a couple of bucks which any club could afford. Let's check the lay-out. Make the diagram of the deck, etc., on a smooth piece of ground by inscribing the lines in the earth with a sharp stick, or drawing them with chalk on a cement or asphalt surface. This would require the spacing of small red flags (or a suitable substitute) at regular intervals of three or four feet about the perimeter of the deck. The participant should be able to see the outline of the deck from his control position 35' or 60' away. Arresting "wires" could be supported at each edge of the deck by a stake cut to suitable length with a hole drilled at the top. The wires should be 1-1/2" above the deck to permit the plane's hook to engage them easily. The weights attached to both ends of each wire serve to retard the plane's forward motion on contact, and are adjusted to maintain tension in the wires. Old socks, filled with sand to the desired weight (recommend 1-1/2 lbs.) serve this purpose. The cable seems to be the only item that would cost the prospective "constructor" anything. It would have to be similar to that in use on the USS Small Fry, since it must be light and at the same time tough enough to withstand the shock. On the regular Small Fry, nylon line, with an elastic center, about 1/8" in diameter is used, but a good strong fishline would suffice. Don't economize on construction here, since the use of improper material might cause the destruction of the model plane. This type of construction of course, is the simplest and most economical. You could go on from there as far as desired. Might want the deck six in. off "terra firma," etc. The carrier deck could be constructed from used lumber at little cost. If the modelers were enterprising young lads, they might scout around and get enough wood, sheet metal, wall board, etc., to construct a jury rig that would be smooth enough to work from. Island structure is moved out of the way when flying gets underway anyway, so just eliminate it altogether. If made, have it detachable so it may be moved when flying gets underway. The same "deck" could be used in classes AA, A, B, C, and D.

(Eddy advises carrier should be eight ft. wide to include AA. Five ft. no dice. Big ships require two lb. weights. Suggests suction cups for concrete. Editor.)

• • •

Caught a letter from James Booker, Secretary of the *Sun Dusters* of Dundolk, Md. Unusual fact is that the members are in the 14 to 15 yr. old bracket. Ten members strong and hot for AA Cargo and PAA Load jobs. Still like the small active clubs rather than the big "dormant" ones.

• • •

The Pacific Coast Model Airplane Championships are being held three weeks running. First week-end: free flight, gas powered events; second week-end: rubber powered free flight; payload, and glider events; third week-end: control line events. Caught plenty of action at the free flight, gas powered events and times were getting close to the 30 min. totals. Looked like Pre-National "war games." Sal Taibi showed off another original payload that was plenty hot. The 550 sq. inch job had 33 per cent stabilizer and had a *Torp* .19 for power.

No possible way of describing anything that looked like a model trend here. All sizes and types on hand. Caught Hal Cover's *Torp* 29 ship that had a tail moment arm like a Wasp. Ship scaled up from a AA by Bob Wiehle. First flight we saw she hit the air for a cool 7-½ mins.

• • •

The *Flying Bisons* of N. Y. are still rolling per meet set-ups and excellent activity. Enjoyed the R.C. info. Harold "Live Wire" DeBolt is in there helping plenty, corn cob pipe and all. Plug Harold—saw one of the *Live Wires* in action with a newcomer on the Citizen's Radio that it carried. Stable, good flyer, and no adjustment troubles. She's a little beauty!

• • •

Auckland, New Zealand—The lads from down under are having it a bit rough in the R.C. field. Les Wright seems to be one of the mainstays in this group. Les' circuit is a good one and may be out for commercial sales in the near future. Seems there aren't many R.C. licenses around but plenty of flying out in the fields. Few pertinent facts about the gear—it's a single channel set but uses a tone system to differentiate between the relays which also act as escapements.

R. C. Glossary

(*Continued from page 27*)

than the equivalent length of straight wire.

Interrupted carrier—A radio frequency carrier which has been pulsed or turned on and off for control purposes.

Kilocycles—One thousand cycles.

Megacycles—One million cycles.

Meter—An electro-mechanical unit for measuring current, voltage, or resistance. Polarity is shown on back of meter case near or on terminal.

Milliampere—One thousandth of an ampere, the current range generally used in radio control work. Usually spoken of as "mils"; i.e., a receiver relay current of 1.5 mils means that 1-1/2 thousandth of an ampere is flowing through the circuit. Generally written as MA or ma.

Modulation—The process of superimposing an audio frequency upon the radio frequency carrier in order to radiate the audio frequency into space.

Ohm—The unit of resistance. A wire has a resistance of one ohm when one volt applied to it causes one ampere of current to flow through the wire.

Plate current—The current which flows through the plate circuit of a tube. Measured in milliamperes. To measure plate current, connect the correct range milliammeter in series with "B plus" lead.

Power input—The wattage fed into a radio tube as determined by voltage applied times current consumed. Current is in amperes or fractions thereof.

Power output—The power delivered into the tank circuit of a tube. Always less than the power input by 20 to 50 per cent due to losses in the tube (heat losses, internal resistance) and in circuit components.

RF—Abbreviation for radio frequency.

RFC—Radio frequency choke. For our work, usually a small cylindrical form wound with one layer of wire, due to the relatively high frequency.

Resistance—The opposition set up in a conducting medium which opposes the flow of current.

Resistor—A device for introducing resistance in a circuit. Usually made of many turns of high resistance wire or various forms of carbon. Widely used in radio control work and available in varied shapes and sizes, both fixed and variable.

Superregenerative receiver—A particular type of receiver, almost universally used in RC work, with a circuit in which the incoming signal is greatly amplified in the detector tube.

Tank circuit—The coil and condenser combination placed in the plate circuit of a tube. Used to tune to the resonant frequency desired.

Volts—The "force" in a battery or power source which pushes the electrons, constituting the current, through the circuit. Analogous to a pump in a water system.

Watts—The unit of electrical power, power being the rate of doing work. Any time current flows through a conductor, power is used and this is expressed in watts. The greater the voltage and the current flow, the greater the wattage. In a formula, watts equal voltage times current. Symbol is "W."

Mars

(*Continued from page 16*)

using flaps for the first time so I'd like to clear up a few misguided ideas. I've tried all sorts of flaps: big ones, small ones, some in the wing and even double ones. For what you get out of them and the improvement of one over the other, the trailing edge attachment flap is the most simple and ideal for stunt. I've gone over a lot of stunters at contests and find the problems were mostly hook up and movement of control surfaces.

The flaps on this model are ideal in size and should move 30° to 35° with the elevator moving 40° to 45°. This allows model to square off, which is needed in the square loop and vertical climb, dive and wing over. The method of hook up to the bellcrank is important. The *Mars* uses two wires, one for the flaps and the other for the elevator.

Being a consistent winner means careful preparation. I believe almost anyone can do it. Constructing a good airplane is first. So build your model as accurately as you can,

WYLAM MASTERPLANS

BOOKS II & III OFFERED IN COMBINATON FOR ONLY $3

These two treasured volumes are packed with super-detailed drawings to guide you in constructing "real jewels" in miniature aircraft. Years of patient research were spent before these drawings were possible.

CONTENTS

BOOK II

Wright Bros. Orig. Flyer
Boeing B-29 Superfort
Bell P-59A Airacomet
Northrop A-17A
Lycoming R-680 Engine
Northrop Black Widow
Martin A-22 Maryland
Republic Thunderbolt
Martin B-26D Marauder
Vought Vindicator
Avro Lancaster 1
Air Bombs
Consol. B-24H Liberator
Boeing B-17G Fly. Fort
Fokker G-1
N. Amer. P-51B Mustang
World War I S.E.-5
Mitsubishi OB-01 Betty
Consolidated Catalina
Curtiss P-40 Warhawk
Grumman F6F-3 Hellcat
Curtiss A-25 Helldiver

BOOK III

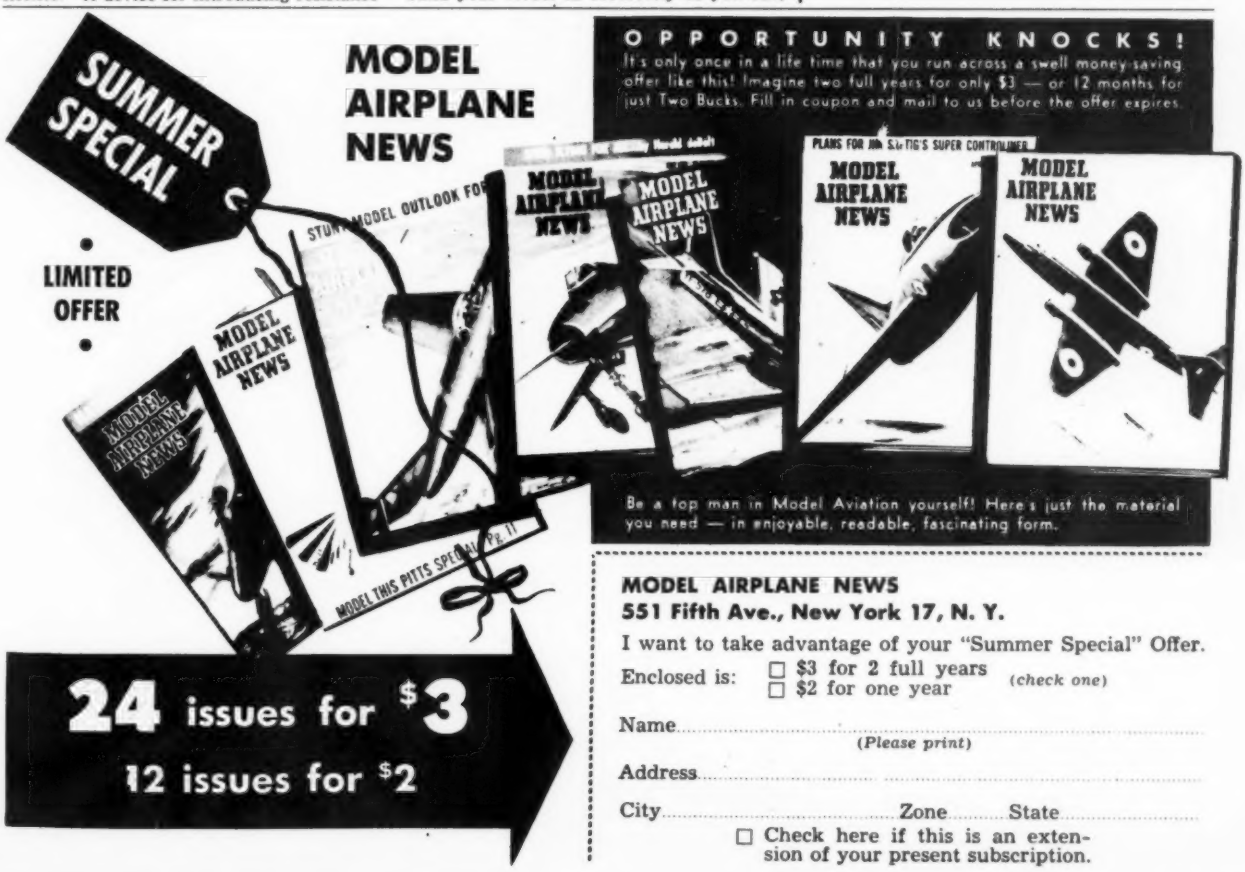
Albatross D-1 to D-6
Bell P-63A King-cobra
Boeing C-97 Strato.
Bristol F2B Brisfit
De Havilland DeH-4
Douglas A-26 Invader
Douglas C-54 Skymaster
Hispano-Suiza Engines
Lewis .30 AA Mach. Gun
McDonnell XP-67
Piper PA-8 Skycycle
S.E.-5 Color Scheme Details
S.E.-5 R.A.F. Markings
Seimens-Haske Engine
Seimens-Schukert D-4
Spad S-VII
Spad S-XIA-2
Spad S-XIII C.1
Vickers .30 and 11 mm Machine Guns
Vultee XP-54

AIR AGE, INC.
551 FIFTH AVE., New York 17, N. Y.

Enclosed find $.....Send me:

( ) Combo. Offer Books II & III.....$3.00
( ) Book II $1.50
( ) Book III $2.00

NAME .....
ADDRESS .....
CITY..... STATE.....


SUMMER SPECIAL
LIMITED OFFER
MODEL AIRPLANE NEWS
OPPORTUNITY KNOCKS!
It's only once in a life time that you run across a swell money-saving offer like this! Imagine two full years for only $3 — or 12 months for just Two Bucks. Fill in coupon and mail to us before the offer expires.
Be a top man in Model Aviation yourself! Here's just the material you need — in enjoyable, readable, fascinating form.
24 issues for $3
12 issues for $2

MODEL AIRPLANE NEWS
551 Fifth Ave., New York 17, N. Y.

I want to take advantage of your "Summer Special" Offer.

Enclosed is: ☐ $3 for 2 full years ☐ $2 for one year *(check one)*

Name.....
(Please print)

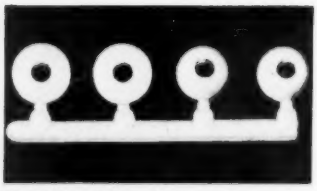
Address.....

City.....Zone.....State.....

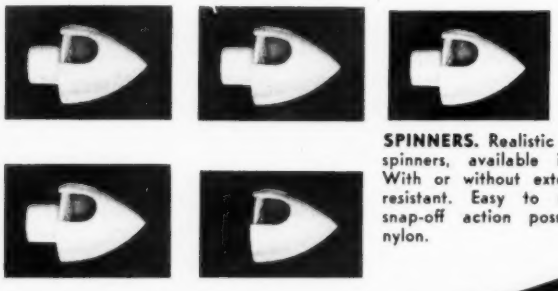
☐ Check here if this is an extension of your present subscription.

NOW FOR THE FIRST TIME!

Here Are All The Latest Developments of Sullivan Research . . . .



WHEEL COLLARS. Now, at last, here are positive-locking wheel collars that look real, are easy to use, and guaranteed not to come off. Push on with your fingers, pull off with pliers.



SPINNERS. Realistic snap-on nylon spinners, available in five sizes. With or without extension. Crash-resistant. Easy to use. Snap-on, snap-off action possible only in nylon.

Of course, patents are applied for on all the new Sullivan developments.

IT'S NEW! BUILD ONE TODAY

Ideal MODELS

AQUA PAL Skiff

16 INCH

No 1530

CAN BE POWERED WITH A TINY ELECTRIC MOTOR OR AN OUTBOARD MOTOR

Ideal is first again with the "Aqua Pal" Skiff. Completely prefabricated with die cut oar blades, panels, bow plates, seats, etc. Two molded balsa sides. Cast oar locks and horns. Step-by-step picture plan.

$1.50 COMPLETE

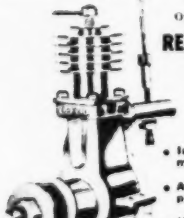
• SEE YOUR DEALER TODAY!

IDEAL MODELS

20-24 WEST 19th ST., NEW YORK 11, N. Y.

Our 519th Advertisement

REAL DIESEL ENGINE!



$2.95 You can't beat this price!

- Ideal for planes, boats, midget cars
- Actually runs at 7500 RPM, produces 1/7 HP
- Height a full 3-1/2 inches; weight 5 ounces

MAYBE WE'RE CRAZY, giving away a precision diesel engine, with cylinder and piston, carburetor, crankshaft, connecting rod, etc., for ONLY $2.95. But we're selling thousands of DEEZILS all over the world, and that keeps our production costs down. DEEZIL is streamlined, compact and easy to install. Runs for years! Fast delivery if you ORDER DEEZIL today!

SEND $2.95 plus 25c postage

GOTHAM HOBBY CORP.

107 E. 126th St., New York 35, N. Y.

especially when installing the engine and accessories. Fasten the engine and tank securely, using lock washers.

Don't be sloppy with your cement joints. Use only enough to insure a good job.

Awaiting a contest to try the *Mars* in competition, Douglas Spreng and I went to Tucson, Arizona. Doug, with his *Mars*, came out a top appearance points winner. The interest of attending modelers and spectators thrilled us both, and I knew we had a good all-around stunter for sure.

Cut fuselage doublers using side view. Lay out tank mounts and cement. Install F2 and F1 in place, square assembly and let dry. Cut sides out, including wing slot. Cut bulkheads out and cement in place. The engine used is a Fox 35, but any 29 or 31 with firewall mounting is perfect. A .19 *Torpedo* would do well, too. In the case of the Fox, where the three bolts are tapped in the case, I used 4/40 x ¾ screws and cut them off, then ran a nut upon the case and through the firewall and fastened with another nut and lock washer. Cut the hatch block out and leave uncontoured until cowl blocks have been cut. By studying plan and seeing where hatch separates, you'll see that part of the cowl block on the right side is cemented to the cowl block. Cement the belly block in place, carve the two cowls and cement on the left one.

Landing gear will require some careful bending. For this reason I used 3/32" wire and soldered it double. You will notice Veco landing gear clips holding the nuts for the three bolts of the engine, thus serving a dual purpose. Cut the belly block into gear location. Install the engine, lower cowl and hatch block, and carve out until engine has just enough clearance. Cut the hub of a broken propeller and install the spinner. With the spinner on the hatch blocks and cowl block on, refer to drawing and photographs. Carve to contour of spinner.

The top deck is a solid soft balsa. Tack cement and carve to shape. Carve out the canopy, remove top deck, and finish inside of cockpit. I used railroad paint, but first, prepare wood for finishing as prescribed in the painting of model. I used gray paint for flooring and black for headrest and radio equipment.

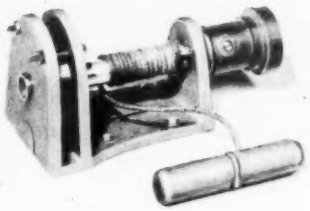
Cut ribs as shown and assemble trailing edge. Remember inboard wing is shown on the plan and left wing will be 2" shorter. Splice 36" pieces in overlap of center line; in other words, not at the center line, but the bottom being in overlap, from the top splice on a rib. Cement up trailing edge on a straight board. By pinning trailing edge in upright position, mark rib locations and insert ribs. Mark location on 3/16" sq. in. spars, and cement and hold with rubber bands. You will notice holes in ribs for 1/8" sq. in. To make it easy, bandsaw a stack of ribs and drill a 3/16" hole. A 1/8" sq. can be slid through these holes. Cement to each rib assembly, rib 3 and rib 4, and wingtip. Wingtips are of 1/4" balsa and spliced like free flight. Flaps are of 3/16" balsa and sanded to a tapered edge of 3/32". Assemble flaps with horn and cement horn well. Leave the flaps off until wing is assembled.

Cut the stabilizer and elevator out of 3/8" balsa. Lightly cement stabilizer to elevator, then carve to airfoil shape. Cut out as shown on plan, and insert ribs that are oversize. After they are dry, fare into contour of stabilizer. Now cut rudders to shape, cut a notch in rudder. The rudder is set in the stabilizer by the tongue method. Set rudder in place and replace the pieces on each side of the tongue. This will help hold your rudders good and secure. Building a thick tail may be new to you, but it really pays off in smoothness and less stalling out.

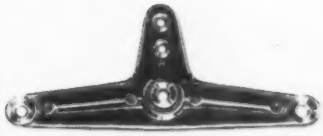
Install the Veco horn in the elevators, cement hinges on, and cut 3/32" control rod to length, within 5" of bellcrank, by taking brass tubing of 3/32" inside diameter. Saw off lengths of 3/32" and use these instead of washers to hold control rods on the horns, and solder well. Install the tail on the fuselage, being very careful to line up on center line and horizontally.

This gear not only has spring effect but torsion also. Look at the plan and bend accordingly. Wrap with string and cement well. Bolt landing gear clip on bellcrank floor. Banner wheels are very realistic. Install wing in place. Measure landing and trailing edge,

PUMP. Here's a faster, more positive pumping action than ever thought possible! Long lasting piston type nylon pump, stainless steel spring and two ball check valves. Corrosion-proof.



STARTER. Here's enough power to start even a pressure job . . . yet is easy to use and low in price. Batteries last longer. Saves its slight cost within several months. Bolts to tool box or bench.



NYLON BELLCRANK. Here's a bellcrank that can't remain bent out of shape. Molded nylon means no sharp, abrasive edges to cut or wear flexible cable.

And the best part is . . . there are many more outstanding accessories to come. Accessories like the amazing new nylon fuel pump . . . faster, more positive action, longer lasting, corrosion-proof. Look for all these, plus a continuing supply of outstanding new accessories by Sullivan Products . . . at your favorite dealer.

PYLON BRAND

Sullivan Products

214 W. Dauphin Street • Philadelphia, Pa.

to be sure of no incidence. Everything is zero in *Mars* and the more accurately wing and tail are set, the more you are insured of a steady model.

With the wing in place, connect the control rods, using tubing to set controls at zero will be easier; that is, rods are cut short and taken up by tubing. Rod to tail should have two guides to keep it from bending under flight pressure. Make these guides from plywood and cement to bulkheads. Controls should be checked for freedom of movement and oiled before top deck is cemented permanently. Cement on top deck and install bolt to hold hatch block in place. You will notice a piece of tin is soldered to tank and nut soldered in place.

Painting and finishing is a very important step and should be done with care. Wing and tail are covered with silk and given five coats of dope. Wood parts doped two times and sanded with 320 wet or dry paper.

A mixture of talcum powder, dope, and castor oil is used to fill the grain. This is very easy and insures lightness and a white undercoat to paint on. To make the mixture, simply mix talcum powder and thinner until you have a paste, then add a little dope so you can handle it with a brush. Add a few drops of castor oil. Paint on with a brush about three separate times. Let each coat dry thoroughly. Then sand with 4-O sandpaper until nice and smooth. Be very careful with fingernails and sharp edges of sandpaper. Dope over the filling about three to four times and sand with 320. Now you're ready for the painting. If possible, use a spray gun. On the *Mars*, I used yellow and red, with a white stripe, between. I painted the yellow first, taping off the yellow, then I painted the white parts, then taping off the white parts. I sanded the blow by off with 400 sandpaper, giving a smooth surface for the final coat of red. As you tape off, paint edge of tape with thin dope. This will keep paint from leaking under taped edge and give a smooth sharp edge. The type of paint used was lacquer, doctored by a little castor oil to keep it from cracking.

The engine cavity should be doped about six times and fuel proofed.

R. C. Receivers

(*Continued from page 25*)

one hour's use. Therefore, from time to time, the receiver must be readjusted. When a tube is new, the antenna trimmer should be set at about minimum capacity. This will apply at both 27 Mc. and 52 Mc. The antenna should be about 20" long for 52 Mc and about 30" long for 27 Mc. The plate rheostat then should be set to give a plate current reading of 1.5ma. As the operating time on the tube increases, the rheostat may be turned towards minimum resistance to maintain the plate curren. at 1.5ma. The antenna trimmer also may be used to increase plate current. However, increasing the capacity of the antenna trimmer will tend to decrease the sensitivity of the receiver. As the tube continues to be used, the antenna coupling will have to be increased in order to maintain the no-signal plate current of 1.3 to 1.5ma. At a certain point in the tube's life, current will fail to rise when the antenna coupling is increased, or perhaps the receiver will show a lack of sensitivity. When this happens, the length of the antenna may have to be increased 30 per cent or more. The coupling then can be decreased by the antenna trimmer's being turned toward minimum capacity, thus increasing the sensitivity and at the same time maintaining the proper plate current.

When a new RK-61 seems to lack sensitivity, we suggest setting the rheostat to get a reading of 2.5 to 3ma. The tube is left to idle at this current for 15 to 20 minutes. Check occasionally during this period by reducing the current to 1.5 ma and noting the sensitivity. This forced aging of the tube will enable it to perform properly.

Some modelers have rejuvenated old tubes by heating them in an oven for about half an hour at 200 to 250 degrees F. The merits of this procedure are not fully established yet but, as long as the experiment is conducted only with old tubes showing lack of sensitivity and low plate current, there is little to lose in any case.

A general understanding of receiver operation may help you gain peak performance

ADD THE "SPIRIT OF THE WEST" To Your Collection

"Easy-to-Assemble" AUTHENTIC KITS

Ideal Models

PIONEER TRAIL

COMPLETELY PREFABRICATED WITH METAL, PLASTIC AND DIE CUT PARTS

• No. 501 STAGE COACH
• No. 502 BUCKBOARD
• No. 503 COVERED WAGON

$1.50 EACH

• SEE YOUR DEALER TODAY!

IDEAL MODELS
20-24 WEST 19th ST., NEW YORK 11, N. Y.

• If you know "why" a model misbehaves, you can do something about it.—Besides the 158 Plans, the **1951-52 MODEL AERONAUTICS YEAR BOOK** also has over 100 pages of reasons "why" models behave as they do. —$2.50 at your dealer or direct.

MODEL AERONAUTIC PUBLICATIONS
Box 333 Sta. D New York 3, N.Y.

Still the OUTSTANDING HANDBOOK on

MODEL FLYING!

NOW in its 4th printing, this widely acclaimed work by the pioneer aero modeler of our age, CHARLES H. GRANT, has taught thousands upon thousands of beginners and advanced students in schools, clubs, and air force personnel on the basic fundamentals of all flight—models and large planes. . . That is why this big volume is acknowledged the "bible" among aero modelers and aviation students over the world.

THE BOOK THAT ANSWERS A THOUSAND FLIGHT QUESTIONS

—What is the best wing section to use?
—How is lift generated and calculated?
—How big should a model plane be; how much power should it have?
—At what angle should the stabilizer be set?
—What pitch is required for a given flying speed?
—How can a plane be made laterally stable?
—How to prevent spiral dives?
—What size propeller should be used? ETC. . . . ETC.

Get your copy of this complete course at only $3.75 postpaid. If you don't agree this is the finest course on model aviation and is just what you need, return within 10 days and money will be refunded in full!

AIR AGE, INC. • 551 FIFTH AVE. • New York 17

FULL-SIZE PLANS

EACH SET OF 2 PLANS FOR 25c

MAILING INSTRUCTIONS. IMPORTANT! Add 5c for postage & packaging on orders mailed 3rd Class.

For First Class add 10c for postage & packaging and for Air Mail add 15c for postage & packaging, for EACH set of TWO plans. Plans available only in groups of 2 as listed.

MODEL AIRPLANE NEWS PLAN DEPT.
551 Fifth Ave., New York 17, N. Y.

- ☐ Enclosed is 25c for full-size plans of "The Jenny" & "Mars."
- ☐ Also 25c for full-size plans of "The Snapper" & "Dieselaire."
- ☐ Also 25c for full-size plans of "The Nobler" & "Funster."
- ☐ Also 25c for full-size plans of "Sky Wing" & "Challenger."
- ☐ Also 25c for full-size plans of "Hotter 'n That" and "Super Saucer."
- ☐ Also 25c for full-size plans of "El Diablo", "Tri-Pacer" and "Play Plane."
- ☐ Also 25c for full-size plans of "Beaver" and "Zenith."
- ☐ Also 25c for full-size plans of "Half Wild Goose" and "Firecracker."
- ☐ Also 50c for full-size Radio Control plans, "Windy Joe" and "Javelin."

Name (please print)

Address

City Zone State

THE JENNY, pg. 11 & MARS, pg. 16

Also Available —

THE SNAPPER: Sensational performance from a Half-A stunter. Simple, all-balsa construction with flexing wing. (July '52 issue.)

DIESELAIRE: Cute, easy-to-make sport free flight for small diesels and glow engines. Will make many flights. (July '52 issue.)

THE NOBLER: George Aldrich's stunt job; the Plymouth finals winner. Tops in realism and a smooth flier. (June '52 issue.)

FUNSTER: Lud Kading's flea-sized free flight that wowed the Nationals. Features all-balsa construction. (June '52 issue.)

SKY WING: Successful free flight sport wing featuring sweep forward; AA engine. (May '52 issue.)

CHALLENGER: Team racer by Leon Shulman that did over 60 laps on diesel. (May '52 issue.)

HOTTER 'N THAT: Fox-powered, light-weight stunter designed for combat. (Apr. '52 issue.)

SUPER SAUCER: Thoroughly tested towline glider for real soaring. (Apr. '52 issue.)

EL DIABLO: A distinctive stunter for engines of .19 to .35 displacement. (March '52 issue.)

TRI-PACER & PLAYPLANE: Here are two jobs. The Tri-Pacer is a scale U-control Piper for .065-.09's; the Playplane is an all-balsa free flight bipe for .049's. (March '52 issue.)

BEAVER: Sturdy, easy to build control line model of Canadian "bush" transport. For .19 to .29 engines. (Feb. '52 issue.)

ZENITH: Class A free flight winner at '51 Nats. Cabin type job designed by Sal Taibi. (Feb. '52 issue.)

HALF WILD GOOSE: An extraordinary Half-A free flight that won 11 firsts during 1950 including its event at the Natls. (Dec. '51 issue.)

FIRECRACKER: A flying scale U-control model of a famous racer; excellent for team racing. (Dec. '51 issue.)

from your set. Figure X shows a standard receiver circuit using the RK-61 tube and we shall refer to it in our explanation. In this type, which is known as a superregenerative receiver, we have a no-signal plate current of about 1.5 milliamperes. The area within the plate of the tube glows a bright purple and a hissing noise can be heard if earphones are inserted at point "x." With no signal coming into the receiver, there is a frequency circulating in the tank circuit, grid resistor/condenser, and tube. This frequency is governed by the grid resistor/condenser combination and it tends to place a voltage at the grid of the tube so that electrons can flow freely from the filament, past the grid and to the plate. This produces a flow of plate current. The amount of plate current is governed by the amount of resistance in the external circuit, the relay and rheostat. The more resistance, the lower the plate current. Thus we set the idling, or no-signal, plate current by varying the resistance of the rheostat. This current flowing in the plate circuit flows through the relay and the magnetic flux set up in the coil of the relay attracts the armature and thus the relay is closed.

Upon receipt of a signal having been imposed upon the antenna, the signal frequency is tuned to resonate in the tank circuit. This is done by varying the variable condenser. When the circuit is tuned to the incoming frequency, the radio frequency circulates through the grid resistor/condenser and a negative voltage is impressed upon the grid. Since the grid is in the electron stream between the filament and plate, a negative voltage acts to repel the electrons back toward the filament, thus decreasing the stream toward the plate. This results in the plate current's decreasing. Thus an incoming signal results in a decrease in plate current, causing the relay to open. The purple glow in the tube decreases or disappears as the signal is received. Also the amount of plate current decrease depends on the strength of the incoming signal.

This is a very elemental explanation since the operation of a superregenerative receiver is complex enough to require a textbook to explain all of its functioning and characteristics. Any kit you purchase or any set you build from plans has been thoroughly checked and will operate properly if instructions have been followed carefully.

Planes in the News

(*Continued from page 5*)

about eight degrees adjustment built in stabilizer to handle the trim changes associated with high speed. These trim changes, you'll recall, come about because of center-of-pressure shifts as you go through sonic speed. This isn't to say that the *B-52* has supersonic performance, but it certainly should be a transonic speedster.

Last—and, to coin a phrase, but not least—thing on the fuselage is a tail turret. Flight picture of the *B-52* makes it look as if someone had to ride back there to pull triggers or something, but that shouldn't be in this mechanized age. Anyway, there is obviously tail armament on the *B-52*, it has to be radar-controlled, and it is presumably automatic with only monitoring necessary by the gunner.

So much for the *B-52*. Boeing deserves credit for taking on two unconventional designs in a row, and judging by the Air Force announcement that the *B-52* is going into production, has received the plaudits of the boys in the wild blue.

▸ *Convair B-60*—Take the *B-36* wing and walk outboard until you get about to the first engine nacelle. Drive a hinge pin through the main spar at that point and rotate the wing around that hinge. That's roughly the *B-60* wing.

This means that you have to decrease flap area somewhat and build a fairing along the new leading-edge line to the fuselage. Then you hang the four twin-nacelle pods on the wing and you've got the *B-60* layout.

The wing changes are the biggest differences between the *B-36* and the newer *B-60*. Fuselage is almost identical with the exception that the *B-60* nose is metal skin rather than glassed-in.

DMECO MODELS

"AMERICA'S FINEST"

A Tried and Proven Design!

AN OUTSTANDING KIT

Full Size Plans
Hardware
Decals
Ready shaped fuselage
Shaped cabin-rudder
Die cut ribs
Finished wing parts

The most rugged and flyable ½ A Stunt model available. The big, thick wing gives superior performance with all small engines, all balsa construction gives ruggedness and ease of assembly!

USES ANY 1/2 A ENGINE

COMPLETE $1.95

ASSEMBLE IN ONE EVENING!

DMECO'S ALL BALSA "Infant WAGON"

BEST FOR 1/2 A STUNT & SPORT

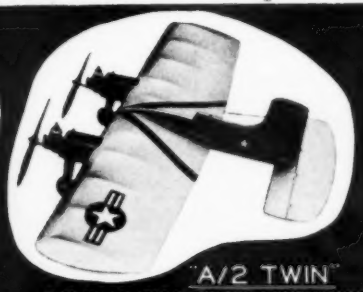
THE TRIED & PROVEN

"all American Team"

WITH ASSYMETRICAL STABILITY

1. THE TRAINER .04-.09 ENGINES $1.75
A FINE BASIC TRAINER FOR LEARNING
2. THE JUNIOR .06-.09 ENGINES $2.50
STUNT TRAINING BECOMES SIMPLE
3. THE ALL AMERICAN .19-.29 ENG. $4.95
A THOROUGHBRED STUNT MODEL
4. THE SENIOR .29-.49 ENGINES $5.95
THE STAR OF THEM ALL, FULL STUNT

MOST DMECO MODELS HAVE DURAL GEARS!



"A/2 TWIN"

FOR SIMPLIFIED TWIN ENGINE FLYING $2.95

OTHER FINE DMECO KITS

NEW BIPE STUNT TRAINER $3.95
SPORTWING COMBAT FLYER $3.95
STUNTWAGONS CONTEST STUNT
SPEEDWAGONS ALL SPEED CLASSES

All of these fine dmeco kits are pre-fabbed from the world's best materials to the most exacting tolerances. Complete with GIANT full size plans, instructions, covering materials and all special hardware to make a truly fine model. Fully unconditionally guaranteed against defects in materials and workmanship.

"LIVE WIRE" R/C TRAINER

A QUICKLY BUILT MODEL FOR R/C TRAINING, RUGGED & MANEUVERABLE YET EASY TO FLY!

COMPLETE DELUXE KIT $6.95

READY TO ASSEMBLE

"SPEEDSTER"

HERE IS REAL FUN WITH 1/2A TEAM RACING!

$2.50

PRODUCTS OF THE DE BOLT MODEL ENGINEERING CO. WILLIAMSVILLE, N.Y.

Tail surfaces of the *B-60* also represent a change from *B-36* practice. Both vertical and horizontal tails have been squared off, and given a moderate degree of sweepback. There may be some dihedral in the horizontal tail, although it's hard to tell.

So these are tomorrow's jet giants, transonic A-bomb carriers with intercontinental range. (I assume flight refueling will be necessary for both airplanes to give them true "intercontinental" range.)

Production times are anybody's guess. There are bad words being said about the *J57* program, although P&W is probably on schedule. The schedules, on the other hand, may be completely unrealistic and out-of-tune with the tough nature of the times. We do know that Boeing is going ahead and that Convair can, presumably any time it gets the signal.

There's one other catch—there's lots more to a current airplane than airframe and engines. There's lots of radar, radio, equipment and armament aboard. The 64 dollar question is: Did they all fly with the airplanes on the first flights? Or is it going to be two years before the planes are as complete inside as they are outside?

▸ *Comet in Service*—May 2nd passed with little notice in the United States. But over in England, a lot of the good people lived for a day in the reflected glory of the introduction of the jet transport age. For May 2nd was the first revenue-producing flight of the de Havilland *Comet*, Britain's greatest air transport achievement.

She took off from London airport on the first leg of the trip to Johannesburg, South Africa, carrying 36 passengers and a crew of six. It took her just 22 min. short of a day to get there, and she was in the air 17 hr. and 16 min. Stage distance is 6,724 mi., and so the average airspeed for the trip works out to just a shade under 400 mph.

Right now the *Comet* should be making three trips per week to the Union of South Africa. In months to come, the *Comet* is expected to fly the routes to Singapore and —of more importance to us—to Bermuda.

▸ *Bits and Pieces*—Out at Flowerfield, Long Island, the Gyrodyne 2c coaxial copter is going through its flight tests for the Defense Dept. One of the few of its kind extant, the big coaxial job is an eyecatcher. And its design layout is aimed at the future use of the coaxial rig in convertiplanes. . . . Aren't you getting awfully tired of the excuses being offered by U. S. manufacturers and airlines trying to explain why we don't have any jet transports? Personally I am rather nauseated by the recent clamors of the industry for government subsidy and help in a development program while the same spokesmen gripe about government interference through taxes and controls. . . . Once when I was studying mechanics and strength of materials, I had a prof who insisted that the class memorize the various strengths of common building materials, including marble, granite and reinforced concrete. I griped; said that I was studying aeronautical engineering and that when that industry started to use reinforced concrete, I was going out of the business. I hope that Prof. Leroy Clark, at Rensselaer Polytechnic Institute, has forgotten the incident, because Breguet, in France, has just announced that they have developed a process for building wings of pre-stressed concrete. An experimental wing they developed is reported to have greater strength than conventional wings of comparable size, and is easier and cheaper to build. Prof. Clark, pick up the marbles. . . . Latest thrust rating on the Armstrong Siddeley *Sapphire* is 8,300 lb. sea level static. This is not a trick figure, but a routine type test. Model developing the rating was the AS Sa6. . . . Northrop Aircraft, Inc. has announced a new process for filling control surfaces with a plastic foam which eliminates the need for ribs. Surfaces can be built for less weight with more strength, says Northrop, and the process is economical. Possible guided missile uses are indicated. . . . Boeing has rigged gigantic drop tanks under the wings of the *B-47*, thereby increasing its range and also ruining its appearance, as far as I'm concerned. These dirty big things hang between the jet pods and make the *Stratojet* filthy, aerodynamically. And I don't care how much the boys argue, that isn't the way to build range into airplanes. END

THE NEW ACE JALOPY

"Jitter-Bug Special"

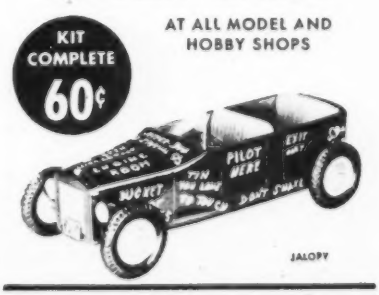
Companion Kit to the Famous ACE "T" ROD

Put this really EASY-TO-BUILD scale model kit together—paint and add the decals of snappy Jalopy lingo that go on the car body—then watch the gang's eyes pop out when they see it! Simplified parts, mostly ready-shaped, that anyone can handle in a jiffy. Complete plans and instructions with each kit. Get yours today!

ACE "JALOPY" KIT No. 2R

KIT COMPLETE 60¢

AT ALL MODEL AND HOBBY SHOPS



DIRECTORY
For Hobby Dealers

CALIFORNIA—LOS ANGELES

Nationally advertised model planes, boats, trains, kits and supplies.
Weekdays and Mon.-Wed.-Fri. Eves.

PICO MODEL CO.
2540 W. Pico Blvd. DUnkirk 7-5894

CALIFORNIA—PASADENA

TRAINS—PLANES—BOATS
Complete Line
Kits—Tools—Supplies
Pasadena's Hobby Center

ACE MODEL SHOP
1655 E. Colorado St. SY 3-6061

CALIFORNIA—OAKLAND (11)

MECHANICAL HOBBIES
Open 9 a.m. to 9 p.m.

MODEL CRAFT HOBBY SHOP
4336 Broadway Piedmont 5-2460

FLORIDA—TAMPA

COMPLETE MODERN STOCK
Planes, Engines, Ships, Trains, Race Cars, Tools & Supplies
EVERYTHING NEEDED.

EDWARDS' HOBBIES
108 East Cass Street 26-2092

ILLINOIS—CHICAGO

Model Airplanes—Tools—Engines
Model Railroads—Ships
Parts Of All Kinds
Chicago's Greatest Stock

ALL-NATION HOBBY SHOP
182 No. LaSalle St. DE 2-0850

ILLINOIS—CHICAGO

Model Airplane Engines, Kits & Supplies.
Model Railroads—Workshop Tools—Handicrafts
Over 2,000 hobby items!

BURGESS HANDICRAFT STORES
182 North Wabash Avenue
Randolph 6-3647

MASSACHUSETTS—CAMBRIDGE (38)

Model planes, motors, railroads, ships and accessories.
9 A.M. to 6 P.M. daily & Thurs., Sat. evenings.

CROSBY'S HOBBY CENTRE
1704A Massachusetts Ave. KI 7-4389

MISSOURI—KANSAS CITY

Model Airplane, Boat, Race Car, Hobby & Craft Supplies
Lionel, American Flyer & HO Trains & Access.
Sun. 10 to 3

NORTHEAST TOY & HOBBY CENTER
4825 Independence Ave. BE 7849

NEW YORK—BUFFALO

MODEL AIRPLANES—ENGINES—BOATS
HANDICRAFT—TRAINS—SUPPLIES
Open Daily Except Weds.
Evenings on Thurs. & Sat.

HOWARD E. RUTH
1466 Genesee St. Taylor 4126

NEW YORK — NEW YORK

DEALERS
Try our Hobby Directory on a 6 or 12 time basis
Write or phone for rates

MODEL AIRPLANE NEWS
551 5th Ave. MU 2-6084

OREGON—PORTLAND

PLANES—BOATS—RAILROADS
RACERS—HANDICRAFT

VIC'S HOBBY SUPPLY
10 a.m. to 6 p.m. — Closed Sundays
1730 N.E. 40th Ave. GA. 3108

PENNSYLVANIA—GETTYSBURG

Model Planes—Motors
Railroads, Ships & Accessories
Open daily 9 a.m. to 9 p.m.
Sun. 1 p.m. to 9 p.m.
We Trade

GILBERT'S HOBBY SHOP
230 Steinwehr Ave. Phone 1025
(On Route 15 to Wash. D. C.)

PENN.—PITTSBURGH 16, DORMONT

If it's worth selling, we have it!
TRAINS—PLANES—BOATS—SUPPLIES
MISC. CRAFTS
Open Mon., Wed., Fri. eves. 7:30-9

A. B. CHARLES & SON
3229½ W. Liberty Ave. LO 1-3068

WASHINGTON—SEATTLE

GOOD SERVICE — HELPFUL ADVICE
Complete Stock
PLANES—BOATS—CARS—HO TRAINS
10 to 6 PM W. F. to 9 PM

BUZZ & DOUG'S HOBBY SHOP
701 E. Pike at Boylston EA 8650

WANTED *Puss Moth* plans from "Model Aircraft Engineer" magazine of around 1934 or prefer magazine itself. Also, *Orkin Craft* metal toy motor boats any model or condition. Send details to Box 21, c/o Model Airplane News, 551 Fifth Ave., N.Y.C. 17.

SORRY:

We are completely Sold Out of full size plans on "Cubee" & "Wagtail" and "Gee Bee" & "Ringmaster."

ADVT. INDEX—AUGUST, 1952

Ace Products 51
Allyn Sales Co., Inc. 35
American Telasco, Ltd. 42
America's Hobby Center, Inc. 6, 7, 9
Mel Anderson Mfg. Co. 38, 39
Arnold & Fox Engineering Co. 40
Atwood Manufacturing Co. 8
Berkeley Models, Inc. 53, 54, 55, 56
Carter Craft Models 44
Cleveland Model & Supply Co. 46
Comet Model Hobbycraft, Inc. 1
Consolidated Model Engineering Co. 40
L. M. Cox Mfg. Co. 3
Dealer Directory 52
DeBolt Model Engineering Co. 51
Duro-Matic Products Co. ..... 4th Cover
Dyna-Model Products Co. 40
F B Model Airplane Co. 43
Fox-Shulman Publications, Inc. 44
Francisco Laboratories ..... 2nd Cover
Gotham Hobby Corp. 48
Guillow, Paul K. 41
Gull Model Airplane Co. 8
Herkimer Tool & Model Works, Inc. 45
Ideal Models 48, 49
Kenhi Model Products 33
K & B Manufacturing Co. ..... 3rd Cover
Vernon C. MacNabb Co. 44
Mod-Ad Agency, The 6
Mod Kraft Co. 44
Model Aeronautic Publications 49
Monogram Models, Inc. 10
National Model Distributors 37
Osborn Hobby Associates 40
PAL Engineering Ltd. 44
Pactra Chemical Co. 42
Polk's Model Craft Hobbies, Inc. 36
Sig Manufacturing Co. 40
Sterling Models 37
Sullivan Products 48, 49
Super-Cyclone, Inc. 4
Testor Chemical Co. 28, 29
Top Flite Models, Inc. 43

AMA News

(*Continued from page 32*)

Ave., Joliet. Pending.

13—*Wilmington, N. C.* Class AA 2nd Annual East Carolina Controline Championships for CL, CLS, and CLFS. W. W. Peck, Jr., C.D., 214 Walnut St., Wilmington.

13—*Fall River, Mass.* 6th Annual Plymouth Elimination Contest for CL, CLS, and CLFS. David P. Turner, C.D., 246 Oliver St., Fall River.

13—*Charleston, W. Va.* Pending.

13—*Paducah, Ky.* Pending.

13—*Grand Rapids, Mich.* Grand Rapids Plymouth Dealers' Meet. Pending.

13—*Terre Haute, Ind.* Plymouth-Lions' Model Plane Contest for FFG, CL, combat, CLS, and RC. Frank Goebel, Jr., C.D., 1513 Washington Ave., Evansville, Ind. Pending.

13—*Gouverneur, N. Y.* Class AA Lions' Invitational Meet for OHLG, TLG, OR, FFG, CL, CLS, and RC. Edwin L. Grow, C.D., 35 Barney St., Gouverneur.

19-20—*Missoula, Mont.* Missoula Plymouth State Meet. Pending.

20—*Falls Church, Va.* Class AA Control Line Meet. W. S. Hinman, Sr., C.D., 410 Great Falls St., Falls Church. Pending.

20—*Allentown, Pa.* Allentown Plymouth Dealers' U-Control Meet for CL, CLS, CLFS, and TR. Entry is restricted to residents of Pa. Wm. Pitt Hartzell, C.D., 335 Juniper St., Quakertown, Pa. Pending.

20—*Greenfield, Mass.* Class AA Kiwanis Model Plane Meet for CL, CLS, and combat. Burton H. Williams, C.D., 27 Southampton Rd., Westfield, Mass.

20—*Williamsville, N. Y.* Contest for AA, FFG, CLS, CL, and 180-lap race. For information, write to: Ernest Coomber, 79 Cobb St., Tonawanda, N. Y. Pending.

20—*Midland, Mich.* Midland Plymouth Model Plane Contest for TLG, OHLG, OR, GLS, CL, and combat. Truman DeVore, 4114 Elm Court, Mdiland.

20—*Oil City, Pa.* Annual Franklin Exchange Club and Plymouth Dealers Association Model Plane Meet. Raymond O. Burns, C.D., 126 Nesbit, Franklin, Pa. Pending.

20—*Decatur, Ill.* Robert Pulliam, C.D., 1145 W. Marietta St., Decatur. Pending.

27—*Portageville, Mo.* Class AAA Rotary-Plymouth Meet for CLS, CL, stunt-scale, and combat. W. C. Kroeger, C.D., Portageville.

27—*Hagerstown, Md.* Class AA Control Line Meet. John Young, C.D., Box 691, Hagerstown. Pending.

27—*Hanover, Mass.* Class AA Kiwanis Air Meet for OR, AA, FFG, CL, CLS, and CLFS. Edward G. Dolby, C.D., 33 Exchange St., Rockland, Mass.

27—*Boonville, Ind.* Frank Goebel, C.D., 1513 Washington Ave., Evansville, Ind. Pending.

27—Aug. 3—*Los Alamitos, Calif.* Class AAAA National Model Airplane Championship Contest. For entry blank and complete information, write to: AMA, 1025 Connecticut Ave., Washington 6, D. C.

AUGUST

3—*Waynesboro, Pa.* Class AA Second Annual U-Control Gas Model Meet of Waynesboro for beauty-scale, CL, RC, combat, and CLS. John A. Otter, C.D., Route 3, Waynesboro.

3—*Minneapolis & St. Paul, Minn.* Class AAA Load Meet for PL, CLS, CC, and RC exhibition. Lytton Calrow, James Lightfoot, and Walter Billett, C.D.'s., 2548 Nicollet Ave., Minneapolis.

3—*Cleveland, O.* Class AA 5th Annual AA Free Flight Contest. John W. Grega, C.D., 10422 Gay Ave., Cleveland 5.

3—*Easton, Pa.* Pending.

10—*DeKalb, Ill.* Class AA DeKalb "Cloud-Dusters" Annual Flying Circus for FFG and OR. Dutch Hess, C.D., 137½ E. Lincoln, DeKalb.

10—*Lancaster, Pa.* Lancaster Model Airplane Contest. Paul Liller, C.D., 426 W. Chestnut St., Lancaster. Pending.

10—*Hamburg, N. Y.* Class AAA 2nd Annual Model Airplane Meet for CLS, CL, FFG, and RC. Joseph W. Friebis, C.D., 67 Raymond St., Hamburg.

10—*Hartford, Conn.* Class AAA Connecticut Control Line Championships for CL, CLS, CLFS, and combat. Richard Matava, C.D., 358 Prospect Ave., Hartford.

17—*West Chester, Pa.* Pending.

17—*Akron, O.* Class A Akron Society of Model Plane Engineers' Meet for OHLG, TLG, and OR. Entry is restricted to members of ASMPE. Frances Alexander, C.D., 25 Mull Ave., Akron.

17—*Key West, Fla.* Exchange Club Meet. Charles A. Fearaldo, C.D., 172-D Poinciana Place, Key West. Pending.

20-25—*Detroit, Mich.* Class AAAA Ltd. Sixth International Model Plane Contest. See your nearest Plymouth dealer for information.

24—*Moline, Ill.* Class A Iowa-Illinois Aeronautic Association Contest for control line events. Entry is restricted to members of the Iowa-Illinois Assn. Jack Stucker, C.D., 4105 14 Ave., Rock Island, Ill.

24—*Los Angeles, Calif.* Class AA Inglewood Flightmasters' 3rd Annual AA Free Flight Scale Contest. William L.

Butler, C.D., 8856 Earhart Ave., Los Angeles 45.

24, 30, 31 & Sept. 1—*Salt Lake City, Utah.* 14th Annual Douglas Trophy Contest. Jack H. Douglas, C.D., 133 East 2nd South St., Salt Lake City. Pending.

31—*Waterloo, Iowa.* Class AAA Prop-Twisters' Model Meet for OHLG, TLG, FFG, CL, CLS, CLFS, RC, PL, OR, and free flight scale. E. H. Fletcher, C.D., 2416 Rownd, Cedar Falls, Iowa.

31—*Chicago Ill.* Class AAA 9th Annual Midwestern States Championships for FFG, OR, RC, and jetex events. Peter L. Vacco, C.D., 4652 Milwaukee Ave., Chicago. Pending.

31 & Sept. 1—*Pawtucket, R. I.* Class AAA 6th Annual All New England Model Meet. Arthur C. Bergeron, C.D., 55 Ricard St., Seekonk, Mass.

31 & Sept. 1—*Crossville, Tenn.* Class AAA Seventh Annual Volunteer State Free Flight Meet for OHLG, TLG, OR, and FFG. Roy A. Stone, Jr., C.D., Crossville.

KEY TO LISTING OF EVENTS: FFG—Free Flight Gas; CL—Control Line Speed; OR—Outdoor Rubber; TLG—Towline Glider; IR—Indoor Rubber; OHLG—Outdoor Hand-launched Glider; IHLG—Indoor Hand-launched Glider; CLS—Control Line Precision (Stunt); CLFS—Control Line Flying Scale; RG—Radio Control; TR—Team Racing; PL—PAA Load; CC—PAA Clipper Cargo.

Contests designated "Pending" mean the application is before the proper authorities as we go to press; "Record Trials" mean no prizes, but a chance at cracking the records.

R. C. Transmitters

(*Continued from page 23*)

as the source of supply, the filament type tube is most commonly used. The Burgess type 4F battery is popular for this work. If a cathode tube is used, six volts must be supplied and the battery must be capable of supplying the necessary current. One, or preferably two, Burgess type F4P1 batteries in parallel should be used. The author's experimental work on 27mc indicates the 3A4 to be the most suitable tube. The 3A5, 3B7, or 3D6 also may be used, depending upon the circuit. In the cathode type, the 6C4 and 6AK6 were found to be satisfactory. The power output of a transmitter may vary with the particular tube used, even though it be of the same type. Frequency also may change slightly. The frequency may be adjusted correctly by means of the tuning condenser, but power output can be changed only by trying other tubes. The 3A5 and 3B7 tubes as used in 52mc transmitters, often had an output varying as much as 50 per cent between tubes.

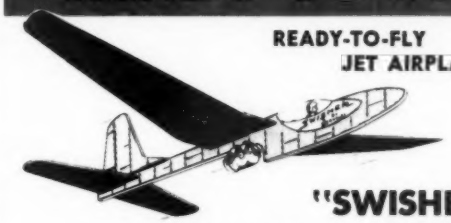
In the past few years, the trend has been toward building the transmitter unit into a case which is large enough to contain also the needed batteries. This allows the transmitter to be placed on the ground and due to its weight, may be used as a support for the antenna. A six to ten foot two-wire cable is brought out from the box and terminated in a keying switch. This arrangement allows greater freedom of movement. Although favored by some of the more experienced model builders, a hand-held battery-contained transmitter is apt to be on the heavy side and if an extra length antenna is used it may be unwieldy.

It is advisable to build a meter into the transmitter box to assure the modeler at all times that the unit is properly tuned. If, in a crystal transmitter, the circuit is allowed to become detuned, off resonance, the crystal and tube may be damaged and batteries may run down.

Following is a typical crystal circuit which we shall use to explain the operation of a crystal transmitter. Figure A is a simple crystal oscillator. In order for a tube to become an oscillator and furnish power into the tank circuit, it is necessary that a small amount of the power circulating in the tank circuit be fed back to the grid circuit. The grid circuit (input of the tube), the tube itself, and the tank circuit (output of the tube), are similar to a circulating water pump sys-

Berkeley Models Are—

READY-TO-FLY...



READY-TO-FLY JET AIRPLANE

"SWISHER"

"SWISHER"

Complete with Jetex "50" Engine and Fuel!

17½" Wingspan. All-Balsa construction,—nothing else to buy! Climbs to 500 ft. altitude on a pellet of Jetex Fuel, glides for 3 to 5 minutes. You will have plenty of thrills with the "SWISHER" at the miracle low price of only — $1.95

READY-TO-FLY "YANK"

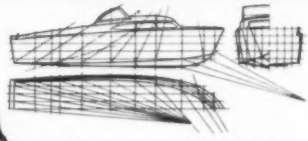
.035 to .049 Engines — 23½" Span

This beautiful all-balsa free-flight comes completely finished. Just slip the wing and stab in place, bolt your favorite engine to the pre-drilled metal fire-wall, and you're ready-to-fly!

$1.50

POWERED BOATS...

$3.50



Authentic Scale Model

*Designed according to latest principals of Intersecting Conical Lofting.

All wood parts are accurately die-cut to shape and need only be assembled.

Marine and Deck hardware is included.

Chris-Craft

"EXPRESS CRUISER"

This exceptionally sea-worthy model of the "Express Cruiser" was designed by the Intersecting Conical Lofting method.* Mahogany veneer construction used throughout.

⅝" Scale—14" Long—
For .045 to .099 Model Aircraft Engines
(Or Small Electric Motors)

Chris-Craft

"RIVIERA RUNABOUT"

Here is a model boat that will give hours of fun building and sailing. She planes beautifully, even in small lakes. It's a true 5 8" scale replica of the world-famous 19-foot Chris-Craft Runabout, designed from factory plans and built from identical mahogany wood.

$2.95

¾" Scale—12" Long—
For .035 to .099 Model Aircraft Engines
(Or Small Electric Motors)

READY-TO-RUN "SEA-JET"

COMPLETE WITH JETEX "50" ENGINE

A complete high-speed 6½" jet powered boat, that races 400 feet in 15 seconds. The hull is formed from colored plastic. For real thrills try team boat racing.

$1.95

SOLD THRU BERKELEY DEALERS & DISTRIBUTORS

If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. MA., West Hempstead, N. Y. Please include 25¢ packing & postage.

Berkeley's 1952 CATALOG . . . 25¢

Completely revised — up to date! Contains complete line of kits, Supplies, Accessories, Information.

Berkeley

THE OUTSTANDING NAME IN-
CONTEST DESIGNS!

Denny Davis's
"SANDY HOGAN"

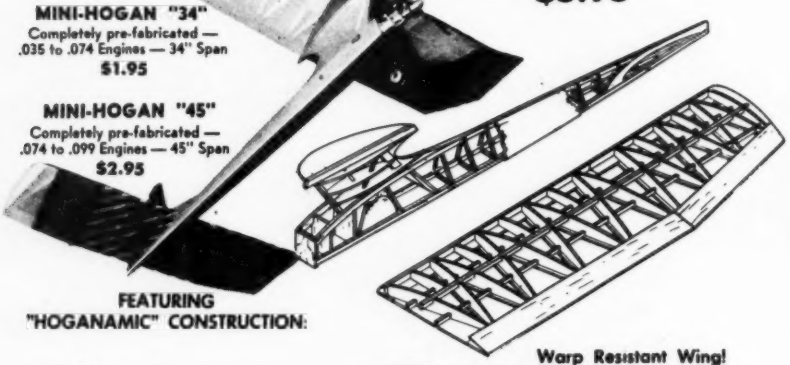
"SANDY HOGAN" embodies the latest developments in model construction. Its warp free "HOGANIC" wing construction is a real advance in model construction. The kit is completely prefabricated with precision die-cut and shaped parts, hardware, covering material and full-size plans.

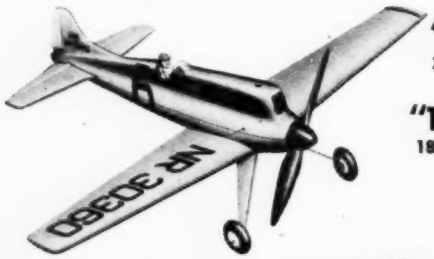
70" Wingspan — .29 to .35 Engines
$5.95

MINI-HOGAN "34"
Completely pre-fabricated — .035 to .074 Engines — 34" Span
$1.95

MINI-HOGAN "45"
Completely pre-fabricated — .074 to .099 Engines — 45" Span
$2.95

FEATURING
"HOGANAMIC" CONSTRUCTION:
Warp Resistant Wing!

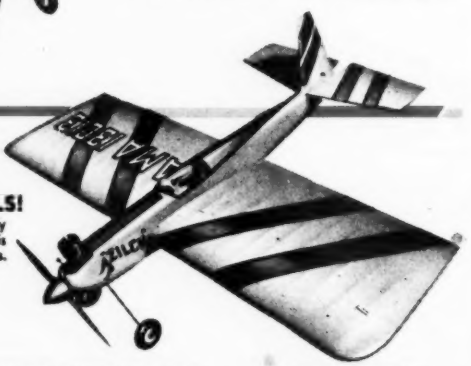




"THE KEY" Team Racer $5.95
29" Wingspan—For .23 to .36 Engines

"THE KEY-DET" Team Racer $2.95
18" Wingspan—For .074 to .099 Engines

Jim Saftig's "ZILCH"
KING OF ALL STUNT MODELS!
This famous stunt design has been constantly improved and kept up-to-date. — Now it is available for "½A, A, B, & C" engines.



"SUPER-DUPER ZILCH"
.45 to .65 Engines
52" Wingspan $5.95

"LIL-DUPER ZILCH"
.19 to .29 Engines
42" Wingspan $3.95

"WEE-DUPER ZILCH"
.045 to .099 Engines
34" Wingspan $2.95

"MINI ZILCH"
.020 to .049 Engines
20½" Wingspan $1.25

1952 CATALOG AVAILABLE - 25¢
Complete and up-to-date, with all the latest kits and accessories — At Your Dealers, - or write direct.

SOLD THRU
BERKELEY
DEALERS & DISTRIBUTORS

IF NO LOCAL DEALER IS CONVENIENT, MAIL ORDERS WILL BE FILLED BY BERKELEY MODEL SUPPLIES, DEPT. MA, WEST HEMPSTEAD, L. I., N. Y. PLEASE INCLUDE 25c PACKING AND POSTAGE.

tem. As long as the output of the pump is fed through the external piping, back to the input of the pump, fluid will flow and we have a circulating action. In a tube circuit, current flows from the filament to the plate, through the tank circuit and back to the battery or power supply. Part of this current, in passing the grid of the tube, sets up a circulating current in the grid circuit, in which the crystal is placed. A voltage placed on the crystal will cause it to vibrate. The frequency of vibration is dependent upon the thickness of the quartz crystal. These vibrations, being in the grid circuit, will affect the circulating currents in the plate circuit, since the path from filament to grid is also common to the plate. Thus the plate current has vibrations or oscillating currents set up in it. The tank circuit, consisting of the tuning condenser and coil, is then adjusted to resonate at this frequency. The bypass condenser is used to channel the RF currents past the battery and back to the filament. There are various crystal oscillating circuits for radio control use, employing various methods of feedback. Different circuits are used because crystals vary in the amount of feedback needed to make them oscillate properly.

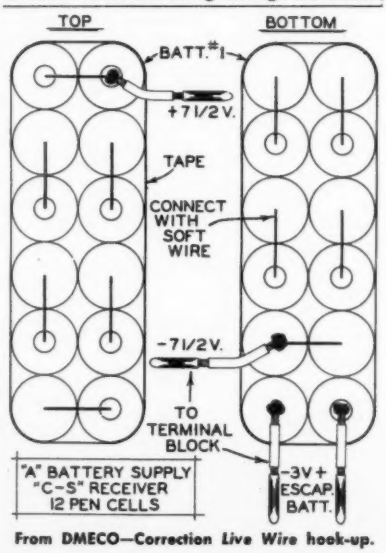
Ten Cent Gliders

(*Continued from page* 34)

stats of the plans made up and passes them, together with complete materials and an 8 x 10 glossy print of himself, to anyone who will half promise to build one. Months pass. Kit sales fall flat on their faces; I hesitate to stock up again. Then IT happens nine times out of ten, and the originator is afraid to show his face at the flying field. Everyone now wants the latest kit and they stomp and scream if you can't get what they want today. I don't like to sound discouraging, but I've seen an old newspaper float out of sight in a good thermal.

The Squelch—there's always one who can't find a kit to suit him. Nothing prefabricated. "Please, something a little more advanced." Hours pass as I let him rummage through kit after kit. "Please, something a little more difficult." The place is a shambles. (Here I congratulate the kit packer. Anyone who can stuff all that back in one little box deserves a medal!) Finally, "Look, I want something intricate. Something that takes a little thought." My stock remark at this point is, "Mister, I'll sell you any kit in the place without the plans."

Now, I reminisce, for I can remember WHEN Your Local Dealer was a trial to me. I remember the day I ran madly to the East Hobby Shop to get a Super Slouch which had just been advertised in five colors on the cover of the latest issue of M.A.N. However, the shopkeeper didn't know a Super Slouch from a hole in his head since he was a cobbler at heart. After searching through his thread,



From DMECO—Correction *Live Wire* hook-up.

leather, rubber, polish, and power machines, he scratched his head, saying, "Sorry. Don't happen to have one handy, but I can give you a real buy on a resole."

I then ran to the West Hobby Shop where the manager greeted me with a personal insult which included my mother and father. I sheepishly asked for a Super Slouch and a poor substitute was pressed upon me. I'd had this treatment before at West Hobby Shop so I pointed to the highest kit on the shelf, and when the manager got a chair to stand on so he could reach it, I ran for the door.

I finally spotted a Super Slouch in the window of North Hobby Shop, but I'd been asked to leave many times for "lingering." Well, a Super Slouch is a Super Slouch, so I marched boldly for the door. He saw me coming, hung an "out for lunch" sign on the door, and bolted the door from the inside. I deliberately sat there for twenty-four hours hoping he would have to munch on balsa, but he must have had a back door, for when I woke up the next morning he was grinning at me from across the street.

At the Last Resort the owner greeted me with open arms and a smile on his face. I looked at the rows and rows of ancient, dust covered kits. I looked at the display of antique engines. It was impossible to buy anything here even if one wanted to. The owner kept one each of everything and would rather part with his right arm than sell the last one of anything he had. The mailman came in with a large parcel. My hopes soared. The owner proudly unwrapped—No!—just ONE Super Slouch!

MAN at Work

(*Continued from page 8*)

Mike Adajan, New Britain, Connecticut, tells us of a touching gesture made by Connecticut clubs in memoriam of Bob Comer, of New Haven. Bob, in cowboy boots, was always an energetic figure in Nutmeg state affairs and helped the Connecticut State Chapter of A.M.A. to get rolling. Associated clubs of the state voted never to give Bob's lucky 13 number to an Connecticut contestant at future meets.

Modelers, stunt fliers in particular, like to think they have quick reactions. Picture yourself in this jam with a Hornet-powered *Zilch*. Walker Anderson, DeLand, Florida, had just moved in and, like Conrad, started looking for a place to fly. There was a likely looking pasture three blocks away—you should have known better, Walker, all flying fields being at least 20 miles from any house. It wasn't long before Anderson had said *Zilch* going through its paces. About half way through the pattern, his buddy started to yell and run toward the car.

"First I thought that either the heat had gotten him or else he had been guzzling the 'Blast,' but as I turned, lo-and-behold, what should I see but one huge bull charging with full steam up.

"How I ever managed I'll never know, but somehow I connected the *Zilch*, with Hornet screaming, amidship of the bull. Last seen of the bull was a dust cloud at the far side of the pasture."

Have you tried Sullivan's wheel retainers? These are shaped something like that sponge cake that has a hole in the middle. Slide them over the axles and, by golly, you can't pull them off again. (Picture here of a smoky soldering iron with a black X over it.) Also, his DuPont dacron line for little ukies. Light, strong, easy to attach, and for some reason, doesn't stretch like nylon line.

At lunch the other day Bruce Wennerstrom recounted some family projects. Bruce once built a life size kyak in the dining room in the apartment house. For moons, this capital ship rested upon the dining room table, forcing hopeful diners to resort to buffet style eating. At college, Bruce built a hot rod. This splendid vehicle was parked at the curb out front throughout its construction, with extension cords and lights coming out the front window of the dormitory. Much banging and working with electric drills in the still spring nights. Now, younger brother runs his big outboard in the bath tub. And you won't run your McCoy 60 in the house.

FOR MODELERS WHO DEMAND AUTHENTIC PERFORMANCE

Berkeley SCALE Controliners

Complete Kit— $4.95

NORTH AMERICAN AT-6 "TEXAN"

(U. S. Navy Designation SNJ-5)

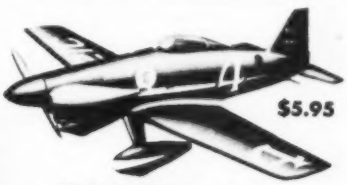
Wingspan—¾" scale—For "19" to "33" Engines

The "T-6" has been taught more people to fly than any other airplane. Hundreds of thousands of pilots who flew this plane will thrill to see this model perform. Beautiful to look at and easy to handle. With its stunt airfoil, it can do everything in the rule book.

KIT FEATURES:
DEEP DRAWN METAL COWL
MOLDED PLASTIC BUBBLE CANOPY
COLOR DECALS FOR USAF OR USN
"CLEAN CUT-OUT" BALSA PARTS
SHAPED LEADING EDGES
SHAPED TRAILING EDGES
SIMPLIFIED FUSELAGE ASSEMBLY
COMPLETE METAL HARDWARE
RUBBER WHEELS "U-CONTROL"

$4.95

Grumann "F-8-F BEARCAT"
35½" Wingspan—For .29 to .65 Engines
Features "Autotrol" rudder operation, eliminating slack control lines in critical maneuvers.



$5.95

"MINNOW" Cosmic Wind
28" Wingspan—For .09 to .36 Engines
This 1½" scale Goodyear racer features "Step Keel" construction. Meets Team Racing rules.

$5.95

North American "T-28"
30" Wingspan—For .23 to .36 Engines
This new Air Force trainer makes a perfect stunt-scale design. Tricycle gear, pre-fab.

$5.95

CESSNA "195"
36" Wingspan—For .19 to .49 Engines
This beautiful 1" scale controline lightplane kit is pre-fabricated. Features "Step Keel."

$4.95

Republic "P-47 THUNDERBOLT"
40¾" Wingspan—For .29 to .65 Engines
Engine throttle control, fully automatic wing flaps, shear-pin mounts and die-cut parts.

$4.95

Betty Skelton's "PITT'S SPECIAL"
25½" Wingspan—For .19 to .33 Engines
Authentic pre-fabricated Controline design of the famous National Aerobatic Champion.

$5.95

North American "P-51 MUSTANG"
37" Wingspan—For .19 to .36 Engines
Features retractable-extensible landing gear, throttle, flap, elevator and rudder control.

Berkeley's 1952 CATALOG... 25¢
Completely revised — up to date! Contains complete line of kits, Supplies, Accessories, Information.

SOLD THRU BERKELEY DEALERS & DISTRIBUTORS

If no local dealer is convenient, mail orders will be filled by Berkeley Models Supplies, Dept. MA., West Hempstead, N. Y. Please include 25¢ packing & postage.

New and Different . . .

NORTH AMERICAN "SAVAGE" AJ-1

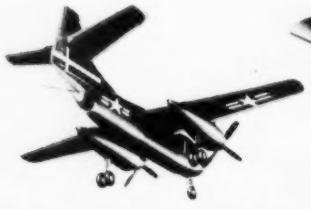
Berkeley's

See this unusual kit at your local shop, and judge for yourself . . . . . .

$6.95

U. S. Navy Atom Bomb Carrying Fighter!

Newest BERKELEY Scale *Controliner*



KIT FEATURES:

Carved & Hollowed Fuselage!
Carved & Hollowed Nacelles!
Five Metal-Hub Rubber Wheels!
Complete Decals!
Embossed Bubble Canopy!
Deep-Drawn Metal Engine Cowls!
Shaped Leading & Trailing Edges!
Die-Cut Ribs, Bulkheads, Etc.
Genuine Jim Walker "U-Control"!

27" Wingspan—3/4" Scale (from factory plans)

(No deviations from scale on this model)

This is the ultimate in scale model controliners. Power it with two gas engines up to .099, and a Jetex Jetmaster "150" as a "Stinger" in the tail for extra high speed boost, just like the real "Savage". Kit includes arresting hook for Carrier Event landings. Fly high speed on all three engines, fly low speed on one engine to win in high-low speed contests.

Scale jet air intake for Jetex cooling, thrust augmenter . . . No access hatches to mar finish. Jetex unit slips out scale size jet exhaust opening with ease . . . Full depth, ply wing spar plus sheet planking amply support engine nacelles under landing impact.

FOR TWIN ENGINES PLUS JETEX . . . PERFECT SCALE!
Two .045 to .099 Engines, and Jetex 50, 100, 200, or new Jetmaster 150 unit. Adjustable balance!

(Jetex unit for reserve power & scale effect)

RADIO & PAA-Load Designs . . .

Pre-fabricated Kit—
$1.95

BRIGADIER "R. C.-38"

For .035 to .099 Engines—38" Wingspan

This completely re-designed "1/2 A—A" Free-Flight may be flown as a Radio Control job, a PAA-Load model, or a free-flight Sport Flyer. Plans include Radio Control and PAA-Load installation details.

Length—15 1/4"
Height—25 3/4"

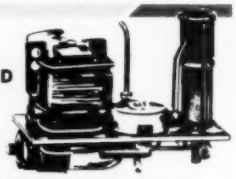
$4.95

"SUPER BRIGADIER"

58" Wingspan—For .19 to .36 Engines

Especially designed by Henry Struck for Radio Control and PAA-Load flying. Plans show details for installation of equipment. Pre-fabricated.

27 m.c. CRYSTAL-CONTROLLED RADIO CONTROL



"SUPER AEROTROL"

NO OPERATORS LICENSE REQUIRED!

First Transmitter You Can Build, Operate, Maintain Yourself!

DUST-CORE TUNED Super Aerotrol RECEIVER

- Operates on either 27.2 or 52 mc. • NEW super-sensitive relay.
- NEW "locked-channel" dust-core tuning. (We have shipped the sample receivers across the country and to Europe without the frequency changing!
- Light in Weight, 2 3/4 oz. less batteries.
- Simple super-regenerator circuit, 100% dependable.

Kit includes: Finished, tested sensitive relay; finished dust-core tuner; drilled bakelite base with condensers and eyelets attached; all electrical components, condensers, resistors, coils, chokes and potentiometer; all necessary contacts, and color-coded wiring. Can be assembled in less than two hours. Complete building and operating instructions are included.

Kit— **$13.95**

Crystal-Controlled Super Aerotrol TRANSMITTER

Completely portable—Self contained—No separate antenna—No external Batteries! • Operates on 27.255 mc. • Weighs 3.5 lbs.

Kit includes all necessary parts (except tube and batteries): Precision Ground Crystal; Painted Metal Cabinet; Finished Sectional Antenna; stamped and formed chassis with all holes punched; all necessary components, resistors, condensers, coils and chokes; color coded wiring. Can be assembled in less than two hours. Complete building and operating instructions are included—

Kit— **$21.95**

Still Available! **DE-Aerotrol** (for 52 mc.) Complete Kit—**$22.95**

Includes Transmitter, Receiver, Escapement (less batteries and tubes).

XFG-1	Receiver Tube	$3.50
3A5	Transmitter Tube	3.50
DE-105K	Escapement Kit	2.95

*Prices and specifications subject to change.

Berkeley's 1952 CATALOG . . . 25¢

SAILABOUT "16"

The only Sailboat designed to sail-out and return. (U.S. Patent No. 2,561,831.)

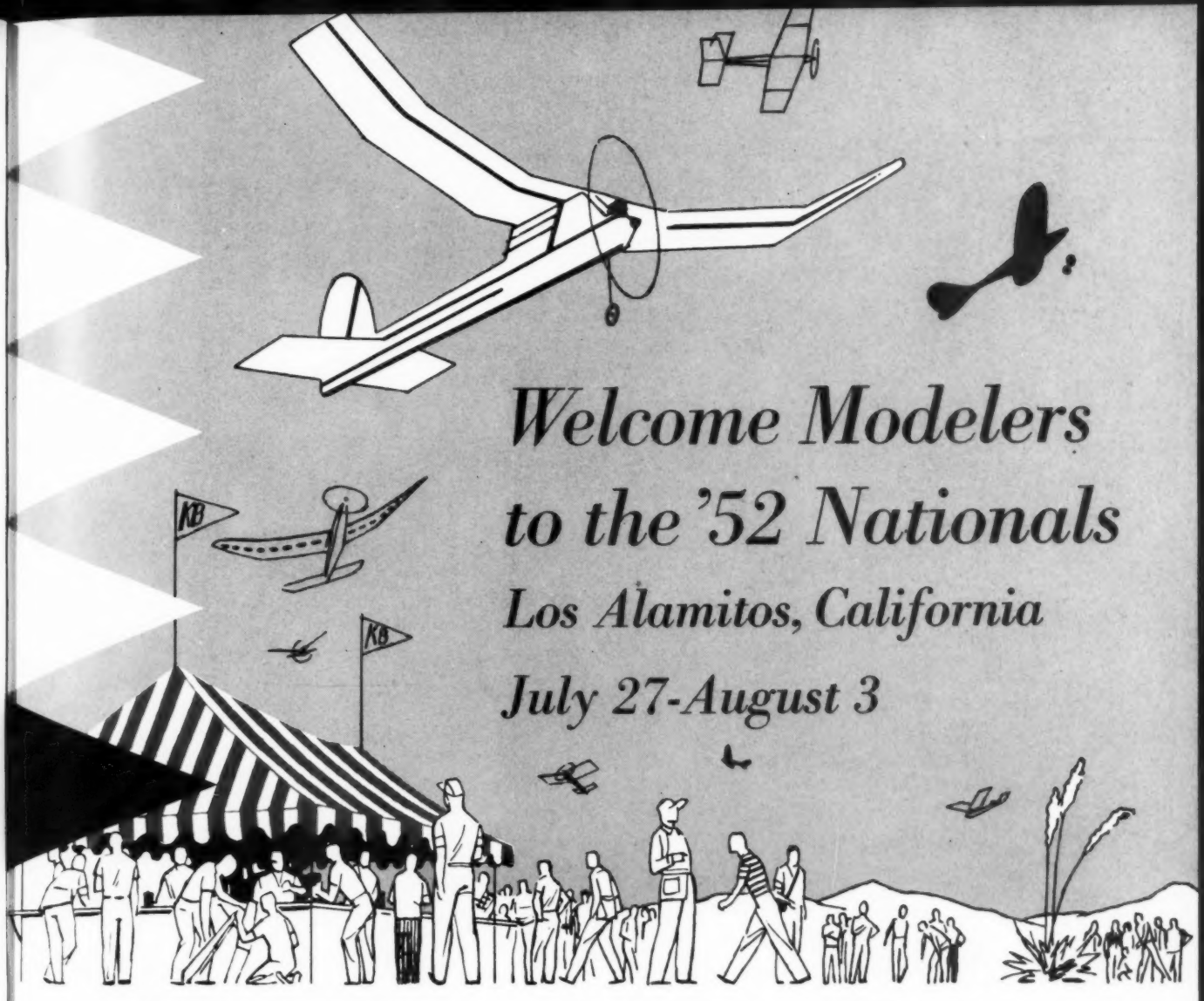
$3.95

The Sailabout "16" is a scientifically designed sailboat that will give amazing speed. The rudder is timer-operated by a fuse mechanism that makes the boat "Come-about", and return over the same course.

Carved & Hollowed Balsa Hull!
Mahogany Cabin & Deck!
Complete Ready-to-Use Sails!
Metal Parts & Complete Hardware!
Molded Metal Keel!

SOLD THRU BERKELEY DEALERS & DISTRIBUTORS

If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. MA., West Hempstead, N. Y. Please include 25¢ packing & postage.



Welcome Modelers to the '52 Nationals

Los Alamitos, California

July 27-August 3

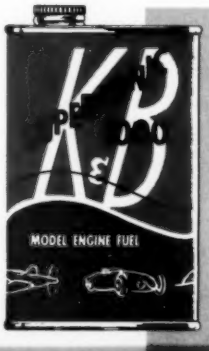
USE THIS K&B SERVICE BOOTH

Again this year K&B will maintain a fully equipped service booth to assist you with repairs and adjustments. Lew Mahieu, former record holder, and Johnny Brodbeck with a team of qualified mechanics will be available to lend you a helping hand. It's another K&B service.

We of K&B are looking forward to seeing you at the '52 Nationals here in Los Angeles in July. It's this type of good old American competition...tough, clean competition...that stimulates the creative thinking that is so important to engine manufacturing. It's the competition that produces a wide awake modeler who is ever on the alert for new ideas and new methods that will enable him to produce finer models. We know you will do your level best...and we wish you all the success possible.

SUPERSONIC...
THE CHAMPION FUEL

Remember, K&B Supersonic Fuel was FIRST PLACE Fuel at the '51 Nationals. Supersonic actually won more FIRST places than all other fuels combined!... Get it...use it...and win!



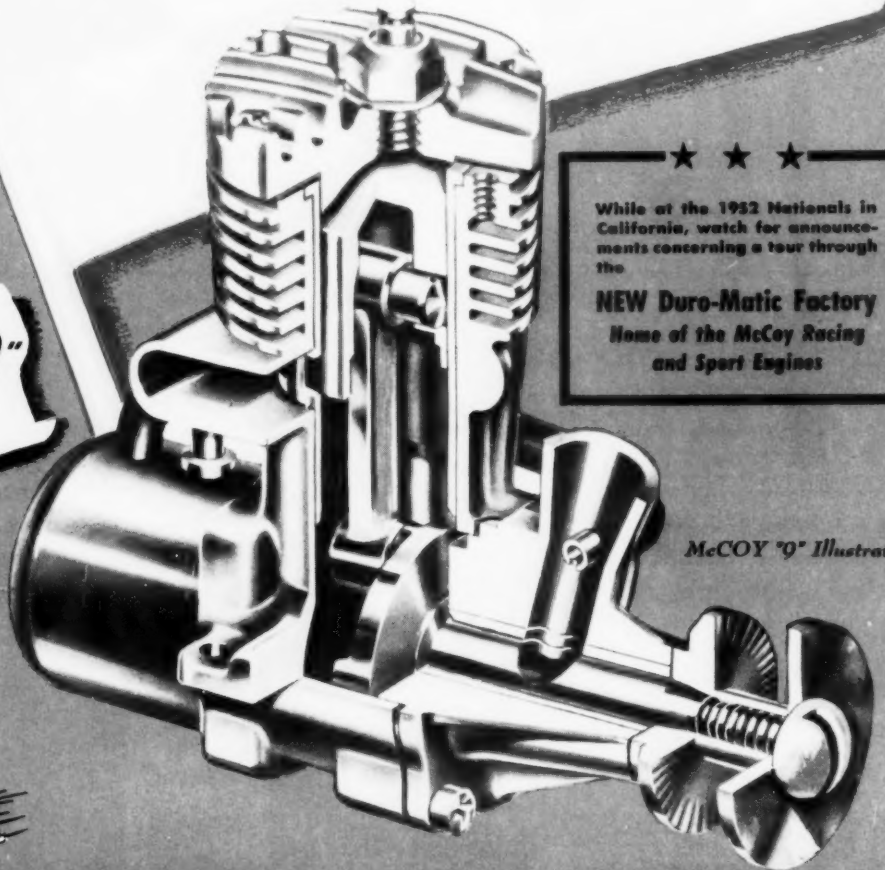
TORPEDO
ENGINES

K&B *Manufacturing Company*

224 East Palmer Avenue, Compton, California

DURO-MATIC McCOY

The McCOY "9" Front Rotor Sport Engine is fast becoming America's fastest selling and most popular favorite. Just right for beginner—experienced hobbyists like its small size and realistic power. If you want to experience the real thrill of flying, power your next model with a Real McCOY



Front Rotor Sport
McCOY "9"
$7.95

★ ★ ★

While at the 1952 Nationals in California, watch for announcements concerning a tour through the

NEW Duro-Matic Factory
Home of the McCoy Racing and Sport Engines

McCOY "9" Illustrated

DURO-MATIC PRODUCTS COMPANY
8509 HIGUERA STREET, CULVER CITY, CALIFORNIA